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FM 1-544

STANDARDIZED MAINTENANCE TEST FLIGHT PROCEDURES

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HEADQUARTERS, DEPARTMENT OF THE ARMY

FIELD MANUAL
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STANDARDIZED MAINTENANCE TEST FLIGHT PROCEDURES

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PREFACE

This field manual is an Aircrew Training Manual (ATM) Supplement which –

a. Establishes guidelines for administering maintenance test flight (MTF) standardization procedures for US Army aircraft. Fixed-wing maintenance test pilot tasks in Chapters 8 and 9 are recommended, but their use is a local command option.

b. Standardizes maintenance test pilot training programs.

c. Provides flight evaluation guidance and standardizes flight evaluation grade slips.

d. Provides maintenance test flight evaluation requirements and procedures developed by the US Army Aviation Logistics School (USAALS) in coordination with the Directorate of Evaluation and Standardization, US Army Aviation Center, Fort Rucker, Alabama.

e. Augments the standard test flight procedures in the applicable aircraft maintenance test flight manual.

f. Establishes criteria for implementing and maintaining worldwide standardized maintenance test flight procedures.

This manual is for use by commanders at all levels and maintenance test pilots.

This publication is a guide to improve unit readiness, aviation safety, and professionalism by promoting standardized procedures. It provides guidance to ensure that standardized procedures are used in maintenance test flights. By using this field manual, commanders and maintenance test pilots can ensure that maintenance test flight proficiency is matched with the unit's mission.

The proponent of this publication is HQ TRADOC. Submit changes for improving this publication on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward it to Assistant Commandant, USAALS, ATTN: ATSQ-LTD-L, Fort Eustis, Virginia 23604-5421.

Unless otherwise stated, whenever the masculine gender is used, both men and women are included.

CHAPTER 1

POLICY

1-1. GENERAL. This chapter discusses –

a. The responsibilities of the US Army Aviation Center (USAAVNC), Fort Rucker, Alabama; USAALS Directorate of Evaluation and Standardization (DOES), Fort Eustis, Virginia; maintenance test flight evaluators (MEs); and commanders at all levels.

b. The duties of the standardization team members.

1-2. RESPONSIBILITIES.

a. The USAAVNC is responsible for aviation standardization and for administering evaluation rides as outlined in the appropriate ATM. The USAALS is an intrinsic part of the aviation standardization program, responsible to the USAAVNC for evaluation and standardization of MTF procedures.

b. The USAALS DOES will provide MEs to act as an integral part of the HQDA aviation standardization evaluation/assistance team. USAALS DOES team members will evaluate designated maintenance test pilots (MPs) and MEs in aviation units throughout the Active Army and Army Reserve Components.

c. Commanders will –

(1) Implement standard MTF policies and procedures through flight standardization personnel.

(2) Designate MEs according to AR 95-1.

(3) Designate MPs according to AR 95-1.

1-3. STANDARDIZATION TEAM MEMBER DUTIES. The DOES, USAALS, is an integral part of the HQDA team. DOES team members evaluate the effectiveness of individual unit, resident, and nonresident MP training portions of the Army aviation standardization program.

a. *Objective.* USAALS representatives to the HQDA aviation standardization evaluation/assistance team are members of the DOES. The USAALS DOES team members evaluate MPs and MEs in Active Army and Reserve Components according to AR 95-1, AR 95-3, the appropriate aircraft MTF manual, the ATM, and this manual. Also, these team members will –

(1) Provide aviation standardization evaluation/ assistance to the USAALS resident test flight training course, evaluating the effectiveness and the standards of maintenance test flight training.

(2) Make specific recommendations to the aviation standardization program at Fort Rucker.

(3) Provide MTF standardization input for changes to DA flight publications.

(4) Provide MTF standardization subject matter expertise to other activities at Fort Eustis and Fort Rucker in preparing and reviewing doctrinal, organizational, and materiel actions.

(5) Coordinate with USAALS academic elements in reviewing standardization procedures and techniques of test flight and academic instruction for technical content of the principles, theories, and practices of test flight procedures, requirements, and equipment.

(6) Review and evaluate extension training material (ETM) on test flights.

(7) When requested, review and evaluate MTF-related articles submitted for publication in Aviation Digest and other aviation-related publications for technical accuracy, content, and standardization.

(8) Review proposed changes of test flight procedures submitted by other agencies.

(9) Provide MTF standardization input to USAALS and HQDA.

(10) Collect statistical data concerning the MTF Army aviation standardization program.

(11) Establish liaison with the US Army Materiel Command (AMC) for coordination on all MTF-related DA Forms 2028.

b. *Team Member Qualifications*. Team members must be graduates of the Maintenance Manager/Maintenance Test Pilot Course (MM/MTPC) test flight phase for the aircraft in which duties will be performed and have the MOS or skill qualification identifier (SQI) for the designated evaluator position on the team. Also, they must have had one year's maintenance experience as an ME, hold DA instructor pilot (IP) qualifications, and be qualified as a standardization instructor pilot (SP) in the aircraft for which duties are to be performed.

CHAPTER 2

TRAINING

2-1. GENERAL. This chapter discusses –

a. MP training programs from qualification training through continuation training.

b. ME training programs from qualification training through continuation training.

c. DA Form 5051-R (Maintenance Test Flight Personnel Training Record).

2-2. QUALIFICATION TRAINING.

a. *Initial Qualification Training Program*. This program is designed to qualify aviators to perform as MPs in specific aircraft. Formal aircraft MP qualification is provided by a pilot's successful completion of the MM/MTPC at Fort Eustis.

b. *Initial Challenge Qualification Program*. Unit commanders may request that their aviators challenge the MM/MTPC. Request is submitted through channels to Assistant Commandant, USAALS, ATTN: ATZQ-LES-M, Fort Eustis, Virginia 23604-5431. Equivalency evaluations are administered by the DOES, USAALS. The evaluation will include written examinations covering the Maintenance Manager's phase, general maintenance test pilot skills, specific aircraft technician skills, and a flight evaluation conducted according to Chapter 3 of this manual.

c. *Subsequent Aircraft MP Training*. If an MP needs to perform MTFs on an aircraft in which he has not received formal resident training, he may be trained in the field by an ME in the OH-58A/C, OH-6, UH-1, AH-1, OV-1, or CH-54. (The OH-58D, AH-64, UH-60, and CH-47 MPs must be graduates of the MM/MTPC test flight phase for which duties are to be performed.) Field training procedures apply as follows:

(1) **Prerequisites.**

(a) The MP must be qualified and current in the aircraft for which training is sought.

(b) The MP seeking training must be an MP in the OH-58A/C, UH-1, or AH-1 according to paragraph a or b above.

(2) **Qualification requirements.** The MP must receive MTF training from an ME in the appropriate aircraft. (The appendix provides the ME with a recommended flight and academic outline for training.) The initial evaluation for designation in the subsequent aircraft will be administered by a DOES-designated ME.

(3) **Grade slips.** A copy of the evaluation grade slip for the initial designation of a field-trained MP in a subsequent aircraft will be sent to Assistant Commandant, USAALS, ATTN: ATZQ-LES-M, Fort Eustis, Virginia 23604-5431.

d. *ME Qualification/Training Program.*

(1) **Prerequisites.**

(a) Designated as an MP according to AR 95-1.

(b) Graduate of the specific aircraft test flight phase of the MM/MTPC for which ME duties are sought.

(c) Minimum of one year's experience as an MP in the aircraft for which ME duties are sought.

(2) **Qualifications.** The MP seeking ME designation must receive training in methods and fundamentals of instruction from an IP, SP, or DOES-designated ME. A DOES-designated ME administers a complete initial evaluation as described in Chapter 3 of this manual. The MP seeking the ME designation will have the ability to evaluate and train the skills necessary to successfully complete an MTF evaluation. This training will be documented in the remarks block of DA Form 759 (Individual Flight Record and Flight Certificate-Army) upon successful completion of the initial ME evaluation.

(3) **Grade slips.** A copy of the initial evaluation grade slip for ME duties will be forwarded to Assistant Commandant, USAALS, ATTN: ATZQ-LES-M, Fort Eustis, Virginia 23604-5431.

(4) **DOES-designated MEs.** The DOES will identify MEs in the field who show exceptional abilities in maintenance standardization. These individuals will be selected during DA flight standardization visits and will receive a designation from the DOES.

2-3. MISSION TRAINING (RL2).

Mission training increases the aviator's proficiency in performing MTFs. The tasks outlined in this field manual are mandatory special mission tasks for aviators designated to perform test flights and will be included on the Commander's Task List in the Individual Aircrew Training Folder (IATF). Commanders are not authorized to delete any MTF tasks. Personnel performing duties as MPs should be limited to duties in a maximum of two aircraft and should be classified as Flight Activity Category (FAC) 2 aviators. It is recommended that MPs be required to complete only those additional ATM special mission tasks that the commander considers complementary to the MTF mission.

2-4. CONTINUATION TRAINING (RL1).

a. Continuation training sustains the proficiency of MPs/MEs in the performance of their duties.

b. Continuation training programs are outlined in Chapters 4 through 9 of this manual. Each of the chapters lists MP/ME tasks by test flight (TF) number and title. Each TF task listed is mandatory for an MTF standardization evaluation.

c. In addition to the required ATM tasks, four iterations of the appropriate MTF tasks will be performed annually. (Proration of iterations is according to the Commander's Guide.) The commander should incorporate six hours per test pilot into the annual flying hour program (FHP) for MP/ME training and evaluations. MEs will perform two iterations from each flight crew station annually.

> **NOTE:** Personnel who are required to perform MTF duties in an additional or alternate aircraft will perform four iterations of the required tasks in each additional/alternate aircraft, according to the applicable chapter of this manual.

2-5. DA FORM 5051-R.

a. Figure 2-1 is a sample DA Form 5051-R (Maintenance Test Flight Personnel Training Record). Local reproduction of this form is authorized. Blank DA forms that can be locally reproduced are located before the authentication page. The training record is used as a management tool at the commander's discretion and is maintained in the IATF.

b. All entries on DA Form 5051-R must be legible. Instructions for completing this form follow:

Block 1. Enter name (last name, first name, middle initial) and rank.

Block 2. Enter date of birth (day, month, year).

Block 3. Enter type aircraft and course graduation date (test flight).

Block 4. Enter FAC level.

Block 5a. Enter aircraft designation for primary aircraft.

Block 5b. Enter aircraft designation for additional or alternate aircraft.

Block 6a. Enter date of last MTF evaluation for primary aircraft.

Block 6b. Enter date of last MTF evaluation for additional or alternate aircraft.

Block 7. Enter unit or organization.

Block 8. Enter table of organization and equipment (TOE) or table of distribution and allowances (TDA) position (paragraph, line number, or description).

Block 9. Enter period covered (date MP or MEqualified to perform duties or start and end date of new annual period).

Block 10a. Enter MTF tasks to be performed in primary aircraft.

Block 10b. Enter number of iterations required for each task.

Block 10c. Enter dates in heading blocks over column. Enter number of iterations by each date opposite each task. It is not necessary to record any iterations in excess of the requirement.

Block 11a. Enter MTF tasks to be performed in additional or alternate aircraft.

Block 11b. Same as block 10b.

Block 11c. Same as block 10c.

NOTE: If additional/alternate aircraft annual evaluations do not align with aviator's annual proficiency and readiness test (APART), use a separate DA Form 5051-R.

MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD

For use of this form, see FM 1-544. The proponent agency is TRADOC.

1. NAME AND RANK	2. DATE OF BIRTH	3. AMOC II COMPL	4. FAC LEVEL
Jegel, James A CW3	4 JUNE 50	UH1/JAN 78	2

5. AIRCRAFT ASSIGNMENT		6 MTF EVALUATION DATES	
5a. PRIMARY	5b. ADDITIONAL	6a PRIMARY	6b. ADDITIONAL
UH-1H	OH-58a	15 JAN 84	25 JAN 84

7. UNIT/ORGANIZATION	8. TOE/TDA POSITION	9. PERIOD COVERED
2/17 CAV, FT. Campbell, KY	ACFT MAINT TECH	1FEB 84 — 31JAN 85

10. PRIMARY AIRCRAFT TASK RECORD

10a. TASKS – GENERAL TEST FLIGHT	10b. FREQUENCY REQUIRED	10c. DATE AND NUMBER OF ITERATIONS 4 FEB	10 MAR	12 JUN	10 SEP
TF 5003	4	1	1	2	
TF 5006	4	1	1	2	
TF 5009	4	1	1	2	
TF 5012	4	1	1	1	1
TF 5015	4	1	1	1	1
TF 5018	4	1	1	1	1
TF 5021	4	1	1	1	1
TF 5024	4	1	1	1	1
TF 5027	4	1	1	1	1
TF 5030	4	1	1	1	1
TF 5033	4	1	1	1	1
TF 5036	4	1	1	1	1
TF 5039	4	1	1	1	1
TF 5042	4	1	1	1	1
TF 5045	4	1	1	1	1
TF 5048	4	1	1	1	1
TF 5051	4	1	1	1	1
TF 5054	4	1	1	1	1
TF 5057	4	1	1	1	1
TF 5060	4	1	1	1	1
TF 5063	4	1	1	1	1
TF 5066	4	1	1	1	1
TF 5069	4	1	1	1	1
TF 5072	4	1	1	1	1
TF 5075	4	1	1	1	1

11. ADDITIONAL AIRCRAFT TASKS RECORD

11a. TASKS – GENERAL TEST FLIGHT	11b. FREQUENCY REQUIRED	11c. DATE AND NUMBER OF ITERATIONS 9 FEB	4 MAR	6 AUG	5 NOV
TF 4400	4	1	2	1	
TF 4405	4	1	1	1	1
TF 4410	4	1	2	1	
TF 4415	4	1	2	1	
TF 4420	4	1	2	1	
TF 4425	4	1	1	1	1
TF 4430	4	1	1	1	1
TF 4431	4	1	1	1	1
TF 4432	4	1	1	1	1
TF 4433	4	1	1	1	1
TF 4434	4	1	1	1	1
TF 4436	4	1	1	1	1
TF 4440	4	1	1	1	1
TF 4445	4	1	1	1	1
TF 4450	4	1	1	1	1
TF 4465	4	1	1	1	1
TF 4470	4	1	1	1	1
TF 4472	4	1	1	1	1
TF 4475	4	1	1	1	1
TF 4480	4	1	1	1	1
TF 4485	4	1	1	1	1
TF 4487	4	1	1	1	1
TF 4490	4	1	1	1	1
TF 4492	4	1	1	1	1
TF 4494	4	1	1	1	1
TF 4495	4	1	1	1	1

SAMPLE

DA FORM 5051-R, JUN 86 EDITION OF JUN 84 OBSOLETE

SAMPLE MTF PERSONNEL TRAINING RECORD

CHAPTER 3

EVALUATION PRINCIPLES AND GUIDELINES

3-1. GENERAL. This chapter describes the principles of evaluation and provides guidelines for evaluating individual MTF personnel. The evaluations—

a. Provide the requirements for personnel to qualify as MPs or MEs.

b. Provide the hands-on portion of the MTF evaluation.

c. Assess the standardization of MTF personnel as a portion of the US Army Aviation Flight Standardization Program.

3-2. EVALUATION PRINCIPLES. The benefit derived from evaluating MTF personnel depends on how closely evaluations follow certain basic principles. Evaluations should not deviate from these principles:

a. Selection. Evaluators must be selected not only for their qualifications but also for their demonstrated performance, objectivity, and ability to observe and provide constructive comments.

b. Method. The method used to conduct the evaluation must be consistent with the unit's mission; conform to applicable regulations, manuals, and SOPs; and be based on uniform standards and objectives.

c. Purpose. The evaluators must ensure that all those concerned with the evaluation fully understand its purpose. They must conduct the evaluation in a goal-oriented manner.

d. Cooperation. Evaluators must make sure that all participants cooperate fully.

e. Specific Findings. Evaluators must ensure that everyone affected by the evaluation knows exactly what is being done wrong, what could be done better, and how. To validate training, evaluations must produce specific findings. General comments often fail to provide the specific direction and guidance needed to improve performance. The evaluation will serve its purpose to the extent that it pinpoints both strengths and weaknesses.

3-3. MP EVALUATION. The MP evaluation determines the examinee's ability to perform the duties of an MP. The recommended procedure for conducting the MP flight evaluation is that the evaluator assumes the role of copilot while the examinee functions as the MP. The evaluation is administered for initial designation as an MP and thereafter as specified in AR 95-1 and TC 1-210. The evaluation sequence in paragraph 3-6c below contains tasks and procedures for conducting MTFs.

3-4. ME FLIGHT EVALUATION. The ME flight evaluation consists of a complete MP evaluation with an additional requirement to determine the examinee's knowledge and application of effective teaching methods and his ability to train, perform, and evaluate MP tasks. This evaluation is administered when the examinee is seeking initial designation as an ME and thereafter as specified in AR 95-1 and TC 1-210. The recommended procedure for this evaluation is that the evaluator assumes the role of the MP performing MTF evaluation tasks while the examinee functions as an ME. The examinee will explain and demonstrate tasks selected by the evaluator. The evaluator may perform as if he were an MP practicing the task and require the examinee to evaluate his (the role-playing evaluator's) performance and progress. Specifically, the examinee must be able to—

a. Organize and conduct an effective flight evaluation. The evaluation plan must include, as a minimum, all tasks identified as mandatory for evaluation.

b. Explain any task or procedure that applies to the MTF of the aircraft, including any components and their control movements.

c. Analyze accurately the role-playing evaluator's performance. He should be able to recognize MP strengths and weaknesses and make constructive, realistic recommendations for improvement.

3-5. PROFICIENCY FLIGHT EVALUATION.

a. The purpose of this evaluation is to–

(1) Determine an MP's or ME's MTF proficiency whenever the commander questions it.

(2) Determine a newly assigned MP's MTF proficiency before he begins to perform MTF duties.

b. The proficiency evaluation will be administered using the guidelines established by the commander.

3-6. MTF EVALUATION.

a. *MTF Personnel Evaluation*. The MTF evaluation measures the MP's or ME's conformance to MTF standardized procedures. Primary aircraft MTF evaluations will be accomplished during the APART; additional and alternate aircraft MTF evaluations will be accomplished annually. The MP or ME who fails to complete the MTF evaluation will be processed according to procedures in AR 95-3. Results of the evaluation are recorded in the aviator's IATF according to procedures in TC 1-210. National Guard and US Army Reserve personnel will take the MTF evaluation during the same quarter as their standardization flight evaluation.

b. *No-Notice MTF Evaluation*. Each commander must establish an active MTF no-notice program. The commander uses this tool to measure the effectiveness of his maintenance continuation training program. No-notice evaluations may be flight, oral, or written and administered individually or collectively. No-notice evaluations should be accomplished according to Chapter 3 of this manual. If the aviator fails this evaluation, TC 1-210 prescribes actions to take.

c. *Evaluation Sequence*. The four-phase evaluation sequence has proven its value over time and should be followed closely.

(1) **Phase 1, Comprehensive Briefing.**

(a) Introduce yourself to examinee.

(b) Check that examinee meets all prerequisites for the evaluation being administered (i.e., qualified, current, MM/MTPC graduate, etc).

(c) Ensure that examinee has all the required equipment for the flight.

(d) Ensure that examinee understands the purpose of the flight evaluation and explain the method used to conduct it.

(e) Discuss standards and criteria that apply.

(2) **Phase 2, Oral Examination.** The ME will test the MP examinee on at least two topics from each of the following major subject areas. The ME examinee will be tested on at least three topics from each of the following major subject areas as well as the Aircrew Training Program (ATP), Methods of Instruction (MOI), Fundamentals of Instruction (FOI), and his ability to apply this knowledge as an ME.

(a) Regulations and publications –

- Test flight weather requirements.
- Local airspace usage (test flight area).
- Publications required in aircraft.
- Maintenance operational check (MOC) requirements.
- MTF requirements.
- MTF forms and records.

(b) Operating limitations –

- Engine limitations.
- Rotor limitations.
- Power limitations.
- Temperature limitations.
- Pressure limitations.
- Airspeed limitations.
- Weight and balance computations.
- Notes, cautions, and warnings.

(c) Troubleshooting and systems operations –

- Engine start.
- Instrument indications.
- Electrical system.
- Caution panel indications.
- Power plant.
- Turbine engine analysis check (TEAC) and engine performance check (EPC).
- Power train.
- Hydraulic system.
- Flight controls.
- Vibration.
- Fuel system.
- Communications and navigation equipment.
- Stability augmentation system (SAS) and automatic flight control system (AFCS).

(d) Emergency procedures –

- Engine malfunctions.
- Governor malfunctions.
- Hydraulic malfunctions.

- Electrical malfunctions.
- Flight control and control hardovers.
- Fuel system malfunctions.
- Loss of tail rotor effectiveness.
- Antitorque malfunctions.
- SAS/AFCS malfunctions.
- Fires.

(e) Aeromedical factors (see AR 40-8 and FM 1-301).*

(f) Aerodynamic factors (see FM 1-203).*

*The proficiency of MPs/MEs in these subject areas must be demonstrated satisfactorily. If they have been demonstrated previously to an IP/SP, there is no requirement to cover them in this evaluation. If the evaluator elects to cover these areas, he should use the appropriate ATM.

(3) **Phase 3, Flight Performance Test.** The flight performance test includes the following:

(a) Flight evaluation briefing–

- Explain the flight evaluation procedures.
- Tell the examinee which tasks he will be required to perform.
- Explain procedures for transferring controls.
- Explain procedures in the event of an actual emergency.
- Answer any questions regarding the evaluation.

(b) Preflight, engine-start, and run-up procedures–

- Use the applicable MTF manual or checklist.
- Have the examinee identify at least four components of the aircraft and discuss their functions during the preflight inspection.
- Have the examinee start and run-up theaircraft as outlined in the applicable MTF manual.

(c) Flight maneuvers. As a minimum, all tasks listed in the appropriate aircraft chapter of this manual must be performed.

(d) Engine shutdown. The examinee will shutdown the engine according to the applicable MTF manual.

(4) **Phase 4, Debriefing.**

(a) Use a grade slip to critique the examinee's performance. Discuss any strengths and weakesses noted during the evaluation. Offer recommendations for improvement if required. Tell the examinee whether he passed or failed the evaluation.

(b) Complete the grade slip according to paragraph 3-7 below.

d. *Grading.* Each task in this field manual includes the grading considerations (minimum standards of performance) that must be met. These standards represent an ideal situation and assume the conditions

developed for each task as prerequisites. During the evaluation, the evaluator must consider deviations from ideal standards and make appropriate adjustments.

e. *MTF Evaluation Failures*. A satisfactory or an unsatisfactory grade slip will be issued at the completion of each evaluation. The grade slip will be posted in the aviator's IATF. Unsatisfactory ME or MP evaluations will result in the suspension of the duties evaluated. Recommended and corrective actions described in AR 95-3 also apply.

f. *Unit Test Flight Designation*. Based on the ME's recommendation, commanders will designate in writing those MPs/MEs who successfully complete the MTF evaluation.

3-7. STANDARDIZATION FLIGHT EVALUATION/TRAINING GRADE SLIP.

a. The grade slip provides a record of evaluation and training conducted at the unit level. It addresses those tasks and procedures that are required in performing MTFs. It contains four pages, as follows:

(1) Standardization flight evaluation/training grade slip (see appropriate ATM).

(2) Appropriate standard maneuvers grade slip (see appropriate ATM).

(3) Appropriate MTF maneuvers grade slip (see the applicable aircraft chapter).

(4) Comment slip (see appropriate ATM).

b. The grade slip is an important tool in attaining standardization and quality control. It should be filled out correctly and legibly according to the appropriate ATM.

c. On completion of the evaluation/training flight, debrief the examinee. Both the examinee and evaluator must sign the grade slip in the space provided. To complete the evaluation/training grade slip, enter the overall grade for the flight based on the following criteria:

(1) During training flights, individual tasks may be graded "unsatisfactory" (U) without resulting in an overall grade of "unsatisfactory."

(2) When used to develop an individual's training program, the MP proficiency flight evaluation need not be graded.

(3) During any evaluation flight, failure on any MTF task will result in an overall grade of "unsatisfactory."

NOTE: Upon reevaluation, the unsatisfactory tasks, as a minimum, must be evaluated.

d. The MTF maneuvers grade slip should be carried in the cockpit during the evaluation/training flight. After completion of each task, the grade (GR) block should be marked either "S" or "U."

e. The standard ATM maneuvers grade slip may be used to grade maneuvers and areas not covered by the MTF maneuvers grade slip. Examples are premission planning, systems malfunctions, emergency procedures, systems knowledge, oral examination, and MOI. They may also be handwritten in the blank spaces on the MTF maneuvers grade slip.

f. A comment referencing the appropriate task graded from the maneuvers grade slips will be used on the comment slip for any task graded "unsatisfactory" during the flight.

CHAPTER 4

OBSERVATION HELICOPTER MAINTENANCE TEST PILOT TASKS

4-1. GENERAL. This chapter contains the observation helicopter test pilot tasks and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. If discrepancies are found between this chapter and the MTF manual, the MTF manual takes precedence. Submit DA Form 2028 as directed in the preface of this manual.

4-2. OH-58A/C MP TASK LIST.

Task number	Task title
TF 4200	Perform prior-to-maintenance test flight checks.
TF 4202	Perform before-starting engine checks.
TF 4205	Perform starting engine checks.
TF 4210	Perform engine run-up checks.
TF 4214	Perform baseline and normal engine health indicator test (HIT).
TF 4215	Perform before-takeoff check.
TF 4220	Perform takeoff to a hover.
TF 4231	Perform hover power check.
TF 4232	Perform hovering turns.
TF 4234	Perform sideward flight.
TF 4236	Perform forward-hovering flight.
TF 4240	Perform pylon isolation-mount check.
TF 4245	Perform power cylinder check.
TF 4250	Perform engine response check.
TF 4251	Perform magnetic compass compensation check.
TF 4265	Perform control-rigging check.
TF 4270	Perform autorotation RPM check.
TF 4272	Perform engine performance check (EPC).
TF 4275	Perform hydraulics-off check.
TF 4285	Perform vibration analysis during increasing airspeeds.
TF 4287	Perform 70-KIAS–15-psi (OH-58A) or 12 percent (OH-58C) descent.
TF 4288	Perform 2:1 vertical vibration check.
TF 4289	Perform flight instruments check.
TF 4290	Perform communication and navigation equipment checks.
TF 4295	Perform after-landing and engine shutdown checks.

4-3. OH-58A/C MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OH-58A/C)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	STARTING ENGINE CHECKS	S
4	ENGINE RUN-UP CHECKS	S
5	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
6	BEFORE-TAKEOFF CHECKS	S
7	TAKEOFF TO A HOVER	S
8	HOVER POWER CHECK	S
9	HOVERING TURNS	S
10	SIDEWARD FLIGHT	S
11	FORWARD-HOVERING FLIGHT	S
12	PYLON ISOLATION-MOUNT CHECK	S
13	POWER CYLINDER CHECK	S
14	ENGINE RESPONSE CHECK	S
15	MAGNETIC COMPASS COMPENSATION	S
16	CONTROL-RIGGING CHECK	S
17	AUTOROTATION RPM CHECK	S
18	ENGINE PERFORMANCE CHECK (EPC)	S
19	HYDRAULICS-OFF CHECK	S
20	VIBRATION ANALYSIS DURING INCREASING AIRSPEED	S
21	70-KIAS - 15-PSI (OH-58A) OR 12-PERCENT (OH-58C) DESCENT	S
22	2:1 VERTICAL VIBRATION CHECK	S
23	FLIGHT INSTRUMENTS CHECK	S
24	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
25	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
26	SPECIAL PROCEDURES	S
27	ORAL EVALUATION	S
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NOTE ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-1-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE OH-58A/C MTF MANEUVERS GRADE SLIP

4-4. TASK CONTENT. Each task contains a task number and title, conditions, standards, description, and references as appropriate.

a. *Task Number and Title.* Each task is identified by a task number and title that correspond to the MP task lists in paragraphs 4-2 for the OH-58A/C, 4-6 for the OH-58D, and 4-9 for the OH-6.

b. *Condition.* The condition statement includes the resources that are available to the MP to perform the task, the circumstances—including environmental factors—in which it will be performed, and any applicable restrictions.

c. *Standards.* The standards describe those elements of performance that must be completed satisfactorily and in the proper sequence to achieve successful performance of the task. Standards may be objective (measurable) or subjective (judgmental).

d. *Description.* This paragraph provides, in narrative form, any additional information that may be needed to explain how the task should be performed to meet the standards.

e. *References.* Publications that must be used or are helpful in performing the task are listed.

4-5. OH-58A/C MP TASKS.

TASK NO: TF 4200

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In an OH-58A/C helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-228-CL used.
2. Items checked in sequence.
3. Aircraft suitability for flight correctly determined.
4. Maneuvers, checks, and tasks required for the test flight determined.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-228-CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operations around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1520-228-10
TM 55-1520-228-CL

TASK NO: TF 4202

TASK: Perform before-starting engine checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. TM 55-1520-228-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4205

TASK: Perform starting engine checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. TM 55-1520-228-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4210

TASK: Perform engine run-up checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. TM 55-1520-228-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4214

TASK: Perform baseline and normal engine health indicator test (HIT).

CONDITION: In an OH-58A/C helicopter or orally.

STANDARDS:

1. TM 55-1520-228-MTF used.

2. Items checked under correct conditions and in proper sequence.

3. Required readings recorded on HIT log.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Use HIT log to perform HIT check. Use computation sheet to perform baseline HIT.

REFERENCES:

TM 55-1520-228-MTF
TM 55-2840-231-23
TM 55-2840-241-23

TASK NO: TF 4215

TASK: Perform before-takeoff check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. TM 55-1520-228-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4220

TASK: Perform takeoff to a hover.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft cleared.
2. Cyclic, collective, and pedal control responses normal.
3. Gradual vertical ascent to a 3-foot hover ±1 foot performed.
4. Apparent center of gravity normal.
5. Droop compensation normal.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensuring that all control and instrument indications are normal, increase collective with smooth, positive pressure; apply antitorque pedals as needed to maintain heading, and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal, and no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude and check that N2 speed is normal. Hovering into the wind, note that cyclic and pedal positions are normal for conditions.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4231

TASK: Perform hover power check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft cleared.
2. Aircraft at a 2-foot stabilized hover.
3. Aircraft headed into the wind.
4. Required readings recorded.
5. Torque in agreement with performance planning card (PPC).
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at a stabilized 2-foot hover into the wind, record torque, turbine outlet temperature (TOT), and N1; determine that readings are within normal limits. Torque must be compared with PPC. Check parking area for indications of leaks. Hover to test flight hover area.

REFERENCES:

TM 55-1520-228-10
TM 55-1520-228-MTF

TASK NO: TF 4232

TASK: Perform hovering turns.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft cleared.

2. A 3-foot hover ±1 foot maintained.

3. Left and right turns of 90° to each side of winddirection, not to exceed a 90° rate of turn in 4 seconds performed.

4. Tail rotor response and rigging noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn. Note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right, 90° to either side of wind direction.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4234

TASK: Perform sideward flight.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft cleared.
2. Left and right sideward flight performed.
3. Flight path approximately perpendicular to wind direction maintained and aircraft headed into wind.
4. Cyclic response noted.
5. Altitude maintained at 3 feet AGL ± 1 foot.
6. Ground speed limited to 5 knots.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform sideward flight with nose into the wind in both directions. Apply cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved. Neutralize cyclic; aircraft should drift to a stop.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4236

TASK: Perform forward-hovering flight.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft cleared.
2. Aircraft stabilized at 5 feet AGL ±1 foot.
3. Aircraft headed into wind for forward-hovering flight.
4. Forward-hovering flight performed at 5 feet AGL ±1 foot.
5. Cyclic response noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift (ETL). Fly to ETL but not through ETL. When aircraft nose pitches up, smoothly reduce collective to terminate maneuver at a 3-foot hover. Note that excessive control inputs are not required and that aircraft response is normal.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4240

TASK: Perform pylon isolation-mount check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Hover stabilized at 3 feet ±1 foot.
2. Aircraft headed into wind.
3. Appropriate altitude maintained.
4. Pylon rock induced.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Move the cyclic fore and aft, not to exceed 1 to 2 inches, at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Note that vibrations dampen out within five cycles. Note that no abnormal vibrations or engine surges occur.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4245

TASK: Perform power cylinder check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Copilot/observer briefing completed.
2. Aircraft headed into wind.
3. A 10-foot hover ±1 foot maintained.
4. Power cylinder check performed.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Move the cyclic smoothly approximately 6 inches to either side of center along a 45° line from left rear to right forward quadrant several times. Note that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant. This verifies the proper flow capacity of the hydraulic pump and adequate servo extension.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4250

TASK: Perform engine response check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft headed into wind.
2. Aircraft cleared left, right, and overhead.
3. Altitude does not exceed 25 feet.
4. Engine response noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: From a stabilized hover, smoothly apply collective pitch (increase in N1 should be noted in less than 1 second); then reduce collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly. N2 must recover within 5 seconds.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4251

TASK: Perform magnetic compass compensation.

CONDITION: In an OH-58A/C helicopter or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 (Pilots Compass Correction Card) and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-228-23

TASK NO: TF 4265

TASK: Perform control-rigging check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Altitude maintained as directed.
2. Aircraft maintained into wind.
3. Force trim turned on.
4. KIAS of 100 ±5 KIAS maintained.
5. Torque of 60 pounds per square inch (psi) for OH-58A or 65 percent for OH-58C maintained.
6. Aircraft maintained in trim.
7. Cyclic and pedal positions noted.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining appropriate airspeed, torque, and trim, note that cyclic is nearly centered. Force trim ON. Relax cyclic pressure and note that the cyclic remains in place. Force trim OFF. Note that right pedal is 1 to 2 inches forward of left pedal. Approximately one-half inch of forward right pedal on pilot's side is normal after compliance with MWO 55-1520-228-50-25. Relax pedal pressure and note pedal response; no creep is allowed.

REFERENCES:

TM 55-1520-228-23-1 and -2
TM 55-1520-228-MTF

TASK NO: TF 4270

TASK: Perform autorotation RPM check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Sufficient altitude maintained to allow power recovery before reaching 500 feet AGL.
2. Aircraft headed into wind.
3. KIAS of 55 +5 -0 KIAS maintained.
4. Suitable landing area within gliding distance.
5. Correct autorotation entry procedure maintained.
6. N1, trim, vibrations, torque, and rotor RPM noted.
7. Correct power-recovery procedure performed.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain 55 KIAS; smoothly lower collective to full down position noting that main rotor does not overspeed. Retard throttle to engine idle. Note that N1 is stabilized at engine idle, aircraft is in trim, sufficient right pedal remains, no unusual vibrations, N2 and rotor needles split, torque is at or near zero, and rotor is stabilized at appropriate RPM. Perform power recovery and establish a definite climb.

REFERENCES:

TM 55-1520-228-23-1 and -2
TM 55-1520-228-MTF

TASK NO: TF 4272

TASK: Perform engine performance check (EPC).

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Aircraft headed into wind.
2. Cruise flight maintained at an altitude of 500 feet AGL or above.
3. Altimeter set to 29.92.
4. Climb established and maintained at 70 KIAS ±5 KIAS.
5. No limitations exceeded.
6. Appropriate readings recorded at test altitude.
7. EPC data analyzed.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: When an EPC is required, preplan MAXIMUM TORQUE AVAILABLE at the selected test altitude. Establish cruise flight at an altitude of 500 feet AGL or above. Set altimeter to 29.92. Ensure that all bleed air is off. Initiate a climb at 70 KIAS, monitoring engine and flight instruments. Approximately 200 to 300 feet before reaching test altitude, slowly increase the collective so that the maximum limit of TOT, N1, or torque is achieved at 103 percent N2 (OH-58A) or 100 percent (OH-58C) at test altitude. Upon reaching test altitude, record the following: torque, N1, TOT, PA, and FAT. Verify OAT at test altitude. Reset altimeter to current altimeter setting. Determine if readings are within limits and whether the required torque was attained before continuing test flight.

REFERENCE:

TM 55-1520-228-MTF

TASK NO: TF 4275

TASK: Perform hydraulics-off check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Altitude maintained as directed.
2. Aircraft headed into wind.
3. KIAS of 70 ±10 KIAS maintained.
4. Copilot/observer briefing (if used) completed.
5. Hydraulics-off check performed.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain 70 KIAS; turn hydraulic boost switch off. Check that cyclic control forces are normal for conditions. Decrease and increase collective, and check that at least 16-psi torque down and 76-psi torque up (OH-58A), 17 percent torque down and 83 percent torque up (OH-58C), can be reached without excessive pressures. Return power to cruise torque and turn hydraulic boost switch on. Verify hydraulics are restored and hydraulic pressure light is out.

REFERENCES:

TM 55-1520-228-23-1 and -2
TM 55-1520-228-MTF

TASK NO: TF 4285

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In an OH-58A/C helicopter or orally.

STANDARDS:

1. Velocity not to exceed (VNE) computed.
2. Altitude maintained according to local directives.
3. KIAS of 70 established.
4. Airspeed increased in 10-KIAS increments.
5. Change in vibration level noted.
6. Malfunctions or discrepancies correctly determined andcorrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining straight-and-level flight, slowly increase from 70 KIAS to VNE in 10-KIAS increments unless vibrations become severe. Note any changes in vibration level. Reestablish normal flight.

REFERENCES:

TM 55-1520-228-23-1 and -2
TM 55-1520-228-MTF

TASK NO: TF 4287

TASK: Perform 70-KIAS – 15-psi (OH-58A) or 12 percent (OH-58C) descent.

CONDITION: In an OH-58A/C helicopter or orally.

STANDARDS:

1. Altitude maintained as directed.
2. Aircraft maintained into wind.
3. KIAS of 70 maintained or airspeed at which vibration becomes noticeable.
4. Descent of 15-psi (OH-58A) or 12 percent (OH-58C) performed.
5. Vibration level noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While flying straight and level at 70 KIAS, note vibration level. Maintain 70 KIAS and reduce power to 15-psi (OH-58A) or 12 percent (OH-58C) torque. Note changes in vibration level. Reestablish 70 KIAS straight-and-level flight.

REFERENCES:

TM 55-1520-228-23-1 and -2
TM 55-1520-228-MTF

NOTE: Use 70 KIAS for training and evaluation purposes. The actual airspeed that the 1:1 vibration is encountered may be different. Perform the maneuver during an actual test flight at the airspeed where the 1:1 vibration becomes noticeable.

TASK NO: TF 4288

TASK: Perform 2:1 vertical vibration check.

CONDITION: In an OH-58A/C helicopter or orally.

STANDARDS:

1. Altitude maintained according to local directives.

2. KIAS of 80 to 90 maintained or airspeed at which the 2:1 vibration is most predominant.

3. Vertical vibration check of 2:1 performed.

4. Change in vibration level noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining 80 to 90 KIAS, perform 30° left and right banks. Note 2:1 vibration level.

REFERENCES:

TM 55-1520-228-23-1 and -2
TM 55-1520-228-MTF

NOTE: Use 80 to 90 KIAS for training and evaluation purposes. The actual 2:1 vibration may be encountered at any airspeed. Perform the maneuver during an actual test flight at the airspeed where the 2:1 vibration is most prevalent.

TASK NO: TF 4289

TASK: Perform flight instruments check.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Altitude maintained as directed.

2. Flight instruments checked.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of all installed flight instruments.

REFERENCES:

TM 55-1520-228-10
TM 55-1520-228-MTF

TASK NO: TF 4290

TASK: Perform communication and navigation equipment checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. Altitude maintained as directed.

2. Airspeed maintained as required.

3. All installed avionics equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform checks according to the appropriate referenced publications. Check FM radio on two different frequencies, guard frequency and FM homing. Check UHF and VHF radios on two different frequencies and guard frequencies. Check transponder, with nearest facility approximately 30 miles away, on assigned squak and emergency. Tune and identify an NDB station, ensuring ADF needle points to station. Fly to station and verify station passage. If time permits execute an NDB approach.

[C] Tune VOR and verify NEEDLE points to station. Adjust OBS and track to station. Verify station passage. If time permits execute a VOR approach.

REFERENCES:

TM 55-1520-228-10
TM 55-1520-228-MTF

TASK NO: TF 4295

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In an OH-58A/C helicopter.

STANDARDS:

1. TM 55-1520-228-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform checks as described in TM 55-1520-228-MTF.

REFERENCE:

TM 55-1520-228-MTF

4-6. OH-58D MP TASK LIST.

Task number	Task title
TF 4400	Perform prior-to-maintenance test flight checks.
TF 4402	Perform before-starting engine checks.
TF 4405	Perform starting engine checks.
TF 4410	Perform engine run-up pilot checks.
TF 4412	Perform system checks.
TF 4415	Perform before-takeoff check.
TF 4420	Perform takeoff to a hover.
TF 4431	Perform hover power check.
TF 4432	Perform hovering turns.
TF 4434	Perform sideward flight.
TF 4436	Perform forward flight to ETL.
TF 4436.1	Perform magnetic compass compensation.
TF 4437	Perform gyro compass calibration.
TF 4438	Perform SCAS check.
TF 4439	Perform heading hold check.
TF 4445	Perform power cylinder check.
TF 4450	Perform engine response check.
TF 4453	Perform hover/hover bob-up check.
TF 4459	Perform takeoff and climb check.
TF 4465	Perform control rigging check.
TF 4470	Perform autorotation RPM check.
TF 4475	Perform hydraulics-off check.
TF 4480	Perform collective anticipator check.
TF 4487	Perform vibration analysis during increasing airspeeds.
TF 4488	Perform 1/rev vertical vibration letdown check.
TF 4489	Perform 4/rev vertical vibration check.
TF 4490	Perform rotor dynamic balance procedures.
TF 4491	Perform flight instrument check.
TF 4492	Perform communication checks.
TF 4493	Perform navigation system check.
TF 4494	Perform ATHS operational check.
TF 4495	Perform mast-mounted sight (MMS) operational diagnostics checks.
TF 4496	Perform airborne calibration procedure.
TF 4497	Perform before-landing check.
TF 4498	Perform after-landing check.
TF 4499	Perform engine shutdown check.
TF 4499.1	Perform special/detailed procedures.

4-7. OH-58D MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OH-58D)

For use of this form see FM 1-544. The proponent agency is TRADOC

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	STARTING ENGINE CHECKS	S
4	ENGINE RUN-UP PILOT CHECKS	S
5	SYSTEMS CHECKS	S
6	BEFORE-TAKEOFF CHECKS	S
7	TAKEOFF TO A HOVER	S
8	HOVER POWER CHECK	S
9	HOVERING TURNS	S
10	SIDEWARD FLIGHT	S
11	FORWARD FLIGHT TO ETL	S
12	MAGNETIC COMPASS COMPENSATION	S
13	GYRO COMPASS CALIBRATION	S
14	SCAS CHECK	S
15	HEADING HOLD CHECK	S
16	POWER CYLINDER CHECK	S
17	ENGINE RESPONSE CHECK	S
18	HOVER/HOVER BOB-UP CHECK	S
19	TAKEOFF AND CLIMB CHECK	S
20	CONTROL RIGGING CHECK	S
21	AUTOROTATION RPM CHECK	S
22	HYDRAULICS OFF CHECK	S
23	COLLECTIVE ANTICIPATOR CHECK	S
24	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	S
25	1/REV VERTICAL VIBRATION LETDOWN CHECK	S
26	4/REV VERTICAL VIBRATION CHECK	S
27	ROTOR DYNAMIC BALANCE PROCEDURES	S
28	FLIGHT INSTRUMENTS CHECK	S
29	COMMUNICATION CHECK	S
30	NAVIGATION SYSTEM CHECK	S
31	ATHS OPERATIONAL CHECK	S
32	MMS OPERATIONAL DIAGNOSTICS CHECKS	S
33	AIRBORNE CALIBRATION PROCEDURE	S
34	BEFORE-LANDING CHECK	S
35	AFTER-LANDING CHECK	S
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NOTE ITEMS 39 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-12-R, JUL 90

SAMPLE OH-58D MTF MANEUVERS GRADE SLIP

4-8. OH-58D MP TASKS.

TASK NO: TF 4400

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: On an OH-58D helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-248-10/CL used.
2. Items performed in sequence.
3. Aircraft suitability for flight correctly determined.
4. Maneuvers, checks, and tasks required for test flight determined.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-248-10/CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operations around or on the helicopter and ensure ground communications are adequate. Stress any applicable safety considerations or procedure during the briefing.

REFERENCES:

AR 95-1
AR 95-3
TM 55-1520-248-10
TM 55-1520-248-CL
TM 55-1520-248-MTF
TM 55-1520-248-23 series
TM 55-2840-256-23

TASK NO: TF 4402

TASK: Perform before-starting engine checks.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4405

TASK: Perform starting engine checks.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4410

TASK: Perform engine run-up pilot checks.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4412

TASK: Perform system checks.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4415

TASK: Perform before-takeoff checks.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-248-MTF

TASK NO: TF 4420

TASK: Perform takeoff to a hover.

CONDITION: In an OH-58D helicopter, with before-takeoff check completed.

STANDARDS:

1. Aircraft cleared.
2. Cyclic, collective, and pedal-control responses noted.
3. Hover altitude of 2 feet ±1 foot maintained.
4. Center of gravity noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensure that all control and instrument indications are normal, then increase the collective with a smooth, positive pressure; apply antitorque pedals, as needed, to maintain heading; and coordinate the cyclic to achieve a vertical ascent. Note that the apparent center of gravity is normal and that no excessive control displacement is required during the ascent. Adjust the collective to maintain the desired altitude. While hovering into the wind, note that cyclic and pedal positions are normal for conditions.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4431

TASK: Perform hover power check.

CONDITION: In an OH-58D helicopter, with takeoff to a hover check completed.

STANDARDS:

1. Aircraft cleared.
2. Hover altitude of 2 feet ±1 foot maintained.
3. Aircraft headed into wind.
4. Required readings recorded.
5. Mast torque checked against PPC and the 5-10-15 percent rule applied.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at a stabilized 2-foot hover into the wind, record mast torque, turbine gas temperature, and NG; determine that readings are within normal limits. Compare mast torque with PPC. Check parking area for indication of leaks. Hover to test-flight hover area.

REFERENCES:

TC 1-209
TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4432

TASK: Perform hovering turns.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft cleared.

2. Hover altitude of 3 feet ±1 foot maintained.

3. Turns not to exceed the rate of 90° in 4 seconds performed.

4. Tail rotor response and rigging noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn. Note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right, 90° to either side of the wind direction.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4434

TASK: Perform sideward flight.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft cleared.
2. Flight path approximately perpendicular to wind direction maintained.
3. Hover altitude of 3 feet ±1 foot maintained.
4. Ground speed limited so as not to exceed 5 knots.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform sideward flight with the aircraft headed into the wind in both directions. Apply cyclic in the desired direction of flight. Note that no excessive inputs are required and that the desired aircraft response is achieved. Center cyclic; aircraft should drift to a stop.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4436

TASK: Perform forward flight to ETL.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft cleared.
2. Hover altitude of 5 feet ±1 foot maintained.
3. Aircraft headed into wind.
4. Cyclic and tail rotor pedals responses noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that the aircraft response is normal.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4436.1

TASK: Perform magnetic compass compensation.

CONDITION: In an OH-58D helicopter or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires calibration.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-248-23

TASK NO: TF 4437

TASK: Perform gyro compass calibration.

CONDITION: In an OH-58D helicopter or orally.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Items performed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1520-248-MTF (Section IV, Special Procedures), perform automatic compass calibration as described and ensure that compass is within limits.

REFERENCES:

TM 11-1520-248-23
TM 55-1520-248-MTF

TASK NO: TF 4438

TASK: Perform SCAS check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft cleared.

2. Aircraft headed into wind.

3. Hover altitude of 5 feet ±1 foot maintained.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: From a stabilized 5-foot hover, induce pitch, roll, and yaw inputs with the SCAS system engaged. Check each axis separately by inducing a control input. Control inputs should be smooth but large enough to induce a momentum to the fuselage of the aircraft. If the SCAS system is functioning properly, centering of the appropriate aircraft control should cause movement to dampen almost immediately. To ensure that the system is functioning properly, disengage the SCAS and check again. When the SCAS is disengaged, aircraft fuselage movement will usually continue after centering of the appropriate control. On completing the check, reengage the SCAS and return to a 3-foot hover.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4439

TASK: Perform heading hold check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft cleared.

2. Aircraft headed into wind.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With the aircraft stabilized at a 3-foot hover into the wind, engage heading hold and check HDG HOLD displays on MFD. Helicopter should maintain heading within ±2°. Guard the tail rotor pedals and bring the aircraft to a stabilized 10-foot hover. Check that aircraft heading remains the same as when stabilized at a 3-foot hover; helicopter heading should maintain heading within ±2°. Descend to a 3-foot hover, move SCAS heading hold ENGA DISENG trim switch to R (right) and L (left) to change aircraft heading approximately 10° to the right and at least 10° to the left. Apply slight pressure left or right to the antitorque pedals and note that heading hold disengages and that HDG HOLD message deletes from the MFD.

NOTE: Heading accuracy is best determined by displaying the MSD page, using map offset.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4445

TASK: Perform power cylinder check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Copilot or observer briefing completed.

2. Aircraft headed into wind.

3. Hover altitude of 10 feet +5 -2 feet maintained.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Move the cyclic smoothly, approximately 3 inches to either side of the center, along a 45° line from the left rear to the right forward quadrant. Move the cyclic several times. Note that operation of the right cyclic servo is smooth and without restriction. Check the left servo by moving the cyclic from the right rear to the left forward quadrant. Ensure LOW HYD PRESS message does not illuminate during this check. This is primarily a flow capacity check of the hydraulic pump.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4450

TASK: Perform engine response check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. Aircraft cleared.

3. Altitude does not exceed 25 feet AGL.

4. Engine response noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: From a stabilized 3-foot hover, make a positive increase in the collective pitch (Ng should increase in less than 1 second); reduce the collective before too much altitude is gained (25 feet). The engine should respond smoothly and rapidly. Land the aircraft and reduce the throttle to the idle position. Move the fuel control switch to the ANLG BACK UP position and increase the throttle to the full open position. Move the RPM increase/decrease switch to + and - positions; NR/NP should remain constant. Stabilize at a 3-foot hover and note NP, make a positive increase in the collective pitch; NR/NP may underspeed or overspeed slightly but should stabilize within two to five seconds. Reduce the collective before too much altitude is gained (25 feet). Land the aircraft and reduce the throttle to the idle position. Return the fuel control switch to the NORM position. Increase the throttle to the full open position and set the NR to 100 percent.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4453

TASK: Perform hover/hover bob-up check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft cleared.

2. Hover altitude of 3 feet ±1 foot maintained.

3. Aircraft headed into wind.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Stabilize at a 3-foot hover over a readily identifiable position and select the hover page on the MFD. Press the hover bob-up button and note the hover position box; stabilize for 15 seconds. The hover position box should remain stable. Reposition the aircraft approximately 10 to 15 feet forward; then return it to the original position. Once repositioned, hover the aircraft laterally either left or right 10 to 15 feet; then return it to the original position. If the hover position box error is excessive, perform the Doppler calibration.

NOTE: Navigation system accuracy can affect position box drift and Doppler calibration.

REFERENCES

TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4459

TASK: Perform takeoff and climb check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Items performed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: During takeoff and climb, ensure that the radar altimeter vertical analog bar displays up to 200 feet ±10 feet and then disappears. Note that the HIGH indicator flashes at 200 feet ±10 feet. Initiate a fuel consumption check. Check for unusual vibrations.

REFERENCES:

TC 1-209
TM 55-1520-248-MTF

TASK NO: TF 4465

TASK: Perform control rigging check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft headed into wind.
2. Airspeed of 100 KIAS ±5 KIAS maintained.
3. Torque maintained at 80 percent ±2 percent.
4. Aircraft maintained in trim.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining appropriate airspeed, torque, and trim, with SCAS disengaged and force trim on, note that the cyclic is nearly centered laterally. Relax the cyclic pressure and note that the cyclic remains in place. After completing the cyclic check, disengage the force trim. Relax the pedal pressure and note the pedal response. Normal pedal position is neutral to 1.5 inches of right pedal forward from the pilot side. The pedals should not creep. Reengage SCAS.

REFERENCES:

TM 55-1520-248-23
TM 55-1520-248-MTF

TASK NO: TF 4470

TASK: Perform autorotation RPM check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. Power recovery completed prior to 500 feet AGL.

3. Airspeed of 55 KIAS +5 -0 KIAS maintained.

4. Ng, trim, vibrations, engine torque percent, Nr, and record noted.

5. Correct power recovery procedure performed.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain 55 KIAS; smoothly lower the collective to full down position. Note that the main rotor does not overspeed. After ensuring that a suitable landing area can be reached, retard the throttle to the engine idle position. Note that Ng is stabilized at engine idle; check that Nr is within normal operating range, that the aircraft is in trim, and that sufficient right pedal remains. Check that no unusual vibrations occur, that engine and mast torques are at or near zero, and that the rotor is stabilized at the appropriate Nr. Perform power recovery by advancing the throttle to full open; ensure that Nr/Np is joined and stabilized before increasing the collective and establish a climb before reaching 500 feet AGL.

NOTE: During power recovery, airspeed should be no less than 55 KIAS.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4475

TASK: Perform hydraulics-off check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. Airspeed of 80 KIAS ±10 KIAS maintained.

3. Copilot/observer (CPO) briefing completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Have CPO turn the hydraulic boost switch off. Check that cyclic control forces are normal for conditions. Check controllability by entering shallow turns, right and left. Decrease and increase the collective and check that at least 17 percent mast torque down and 83 percent mast torque up can be reached without excessive pressure or exceeding any limitations. Upon completion, stabilize the controls, relax the pressure, and have the CPO turn the hydraulic boost switch on and engage SCAS. The primary purpose is to check for properly indexed elastomeric bearings in the main rotor system.

WARNING

Bank angles exceeding 45° without hydraulic boost may cause roll rates to exceed controllable limits.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4480

TASK: Perform collective anticipator check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. Airspeed of 80 KIAS ±10 KIAS maintained.

2. Ng stabilized at 78 percent ±1 percent.

3. No limitations exceeded.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While maintaining 80 KIAS at an appropriate altitude to allow for descent and recovery, note Ng. Enter the maneuver by lowering the collective until reaching 78 percent ±1 percent Ng and allow to stabilize. Once Ng is stabilized, make a positive increase in the collective at a rate which will attain 85 percent mast torque in five seconds. Check to ensure that Nr/Np droop does not exceed 4 percent. When the check is completed, return to the original torque value and resume normal flight. If the Nr/Np droop exceeds 4 percent, terminate the test flight and return to the maintenance facility for corrective action.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4487

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In an OH-58D helicopter or orally.

STANDARDS:

1. Velocity not to exceed (VNE) computed.

2. Change in the vibration level noted.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining straight-and-level flight, slowly increase from 70 KIAS to VNE in 10-knot increments unless the vibrations become severe. Note any changes in the vibration level. Disregard the change in vibration level caused by the hop range. A smooth rotor system will have a narrow hop range – usually only 1 percent or 2 percent wide.

> **NOTE:** This task is only supplemental and is not designed to be used in place of vibration analysis equipment for the purpose of smoothing the rotor system.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4488

TASK: Perform 1/rev vertical vibration letdown check.

CONDITION: In an OH-58D helicopter or orally.

STANDARDS:

1. Airspeed of 80 to 90 KIAS maintained.

2. Change in vibration level noted.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While flying straight and level at 80 to 90 KIAS, note the vibration level and reduce the collective to the full-down position. Note the change in the simulated 1/rev vibration level. If the vibration level increases or remains the same, an adjustment to the main rotor pitch-change link is required. If the vibration level decreases, a trim tab adjustment is required.

NOTES:

1. Use 80 to 90 KIAS for training purposes. An actual 1/rev vertical vibration may be encountered at any airspeed. Perform the maneuver during an actual maintenance test flight at the airspeed where the 1/rev vertical vibration is most prevalent.
2. This task is only supplemental and is not designed to be used in place of vibration analysis equipment for the purpose of rotor smoothing.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4489

TASK: Perform 4/rev vertical vibration check.

CONDITION: In an OH-58D helicopter or orally.

STANDARDS:

1. Airspeed of 80 to 90 KIAS maintained.

2. Change in vibration level noted.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining 80 to 90 KIAS, perform 45° left and right banks. Note the change in the simulated 4/rev vibration level. An increase or decrease in vibration level will indicate the presence of a correctable 4/rev. If the 4/rev vibration remains the same, it is inherent and therefore considered uncorrectable. Once determined that it is correctable, make a judgment on whether it is acceptable or unacceptable, depending on its severity. If an intermittent 1/rev is encountered during this maneuver, it indicates a product balance problem. Significant product balance problems can be corrected at depot level.

NOTES:

1. Use 80 to 90 KIAS for training and evaluation purposes. The actual 4/rev vibration may be encountered at any airspeed. Perform the maneuver during an actual test flight at the airspeed that the 4/rev vibration is most prevalent.
2. This task is only supplemental and is not designed to be used in place of vibration analysis equipment for the purpose of rotor smoothing.
3. A 1/rev vibration will normally mask a 4/rev vibration. A 4/rev check should not be accomplished if a 1/rev exists.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4490

TASK: Perform rotor dynamic balance procedures.

CONDITION: In an OH-58D helicopter, with vibration analysis equipment, or orally.

STANDARDS:

1. TM 55-1520-248-MTF and TM 55-1520-248-23 used.

2. Rotor vibrations brought within acceptable limits.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1520-248-MTF and TM 55-1520-248-23, perform rotor working procedure with vibration analysis equipment.

REFERENCES:

TM 55-1520-248-23
TM 55-1520-248-MTF

TASK NO: TF 4491

TASK: Perform flight instrument check.

CONDITION: In an OH-58D helicopter.

STANDARDS: Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Verify that standby instruments correlate with the vertical situation display (VSD) page and accomplish functional checks by using timed turns, climbs, and known power settings.

REFERENCES:

TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4492

TASK: Perform communication checks.

CONDITION: In an OH-58D helicopter, during the day, under VMC, or orally.

STANDARDS:

1. All installed avionics equipment checked.

2. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Verify that all radios function properly. Verify each radio on at least two separate frequencies. Check FM homing for proper operation, any installed secure radio equipment, and the transponder with the local ATC facility.

REFERENCES:

TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4493

TASK: Perform navigation system check.

CONDITION: In an OH-58D helicopter or orally.

STANDARDS:

1. Aircraft navigation system aligned.
2. Three way points selected, 10 km ±1 km apart.
3. TM 55-1520-248-MTF (Section IV, Special Procedures) referred to.
4. Items performed in sequence.
5. Circular error correctly computed.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Position aircraft at a surveyed eight-digit UTM navigation alignment location. Pull the AHRS DC circuit breaker out. Enter navigation alignment information. Push the AHRS DC circuit breaker in and wait for the navigation system to align. Select three surveyed UTM map coordinates with the first WAY POINT 10 km ±1 km away from the navigation alignment location. Distance for subsequent flight legs must be 10 km ±1 km apart. Fly to each surveyed WAY POINT and perform a hover NAV UPDATE. Return to the navigation alignment location and write down the coordinates without updating the system. Compute circular error as outlined in Section IV of TM 55-1520-248-MTF.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4494

TASK: Perform ATHS operational check.

CONDITION: In an OH-58D helicopter, from the CPO's station, given the appropriate information for initialization, and a compatible receiving station, or orally.

STANDARDS:

1. TM 55-1520-248-MTF (Section IV, Special Procedures) used.

2. Items performed in sequence.

3. Malfunctions or discrepancies correctly determined andcorrective actions/troubleshooting procedures applied.

DESCRIPTION: Using the appropriate frequencies and identifiers, select and initialize ATHS from the CPO's station. Select and send a Mayday message to a suitable equipped ground or air receiver. Using voice communication with the receiving station, verify proper operation and grid transmitted.

> **NOTE:** If an appropriate receiving station is not available, verification of operations is not required.

REFERENCES:

TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4495

TASK: Perform mast-mounted sight (MMS) operational diagnostics checks.

CONDITION: In an OH-58D helicopter, with an operational MMS, from the CPO's station.

STANDARDS:

1. TM 55-1520-248-MTF (Section IV, Special Procedures) used.

2. Items performed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform an MMS operational check according to TM 55-1520-248-MTF (Section IV, Special Procedures). Note and record any faults displayed on the MMS diagnostics page.

REFERENCES:

TM 9-1240-778-20
TM 55-1520-248-MTF

TASK NO: TF 4496

TASK: Perform airborne calibration procedure.

CONDITION: In an OH-58D helicopter under VMC, with an operational MMS, from the CPO's station, or orally.

STANDARDS:

1. TM 55-1520-248-MTF (Section IV, Special Procedures) used.

2. Items performed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Refer to TM 55-1520-248-MTF for proper procedures.

> **NOTE:** Airborne calibration is required when there are excessive errors during prepoint, target locate, and offset update operations.

REFERENCES:

TM 55-1520-248-10
TM 55-1520-248-MTF

TASK NO: TF 4497

TASK: Perform before-landing check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using oral call-out and confirmation method, complete a before-landing check. During descent, note that the radar altimeter analog bar reappears and that the low indicator flashes at 180 feet ±10 feet AGL.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4498

TASK: Perform after-landing check.

CONDITION: In an OH-58D helicopter.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4499

TASK: Perform engine shutdown check.

CONDITION: In an OH-58D helicopter, after landing check completed.

STANDARDS:

1. TM 55-1520-248-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-248-MTF

TASK NO: TF 4499.1

TASK: Perform special/detailed procedures.

CONDITION: In an OH-58D helicopter with equipment installed.

STANDARDS:

1. TM 55-1520-248-MTF with changes used.

2. Additional publications used as required.

3. Oral call-out and confirmation method used.

4. Items performed in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected check may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 9-1240-778-20
TM 9-1240-778-30
TM 9-1427-779-20
TM 9-1427-779-30
TM 9-4935-780-13
TM 11-1520-248-23
TM 11-5841-283-12
TM 55-1520-248-10
TM 55-1520-248-23 series
TM 55-1520-248-CL
TM 55-1520-248-MTF
TM 55-2480-256-23

4-9. OH-6 MP TASK LIST.

Task number	Task title
TF 4600	Perform prior-to-maintenance checks.
TF 4602	Perform before-starting engine checks.
TF 4605	Perform starting engine checks.
TF 4610	Perform engine run-up checks.
TF 4614	Perform baseline and normal engine health indicator test (HIT).
TF 4615	Perform before-takeoff checks.
TF 4620	Perform takeoff to a hover.
TF 4632	Perform hovering turns.
TF 4634	Perform sideward flight.
TF 4636	Perform forward-hovering flight.
TF 4650	Perform engine response check.
TF 4652	Perform low-RPM hover.
TF 4653	Perform magnetic compass compensation.
TF 4665	Perform control-rigging check.
TF 4670	Perform autorotation RPM check.
TF 4672	Perform engine performance check (EPC).
TF 4683	Perform vibration analysis (without Vibrex).
TF 4684	Perform collective bungee check.
TF 4685	Perform flight instruments check.
TF 4690	Perform communication and navigation equipment checks.
TF 4692	Perform before-landing checks.
TF 4695	Perform after-landing checks.
TF 4698	Perform engine-out/reignition check.
TF 4699	Perform engine shutdown checks.
TF 4699.1	Perform special/detailed procedures.

4-10. OH-6 MTF MANEUVERS GRADE SLIP -

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OH-6)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	STARTING ENGINE CHECKS	S
4	ENGINE RUN-UP CHECKS	S
5	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
6	BEFORE-TAKEOFF CHECKS	S
7	TAKEOFF TO A HOVER	S
8	HOVER POWER CHECK	S
9	HOVERING TURNS	S
10	SIDEWARD FLIGHT	S
11	FORWARD-HOVERING FLIGHT	S
12	ENGINE RESPONSE CHECK	S
13	LOW-RPM HOVER	S
14	MAGNETIC COMPASS COMPENSATION	S
15	CONTROL-RIGGING CHECK	S
16	AUTOROTATION RPM CHECK	S
17	ENGINE PERFORMANCE CHECK (EPC)	S
18	VIBRATION ANALYSIS (WITHOUT VIBREX)	S
19	COLLECTIVE BUNGEE CHECK	S
20	FLIGHT INSTRUMENTS CHECK	S
21	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
22	BEFORE-LANDING CHECKS	S
23	AFTER-LANDING CHECKS	S
24	ENGINE-OUT/REIGNITION CHECK	S
25	ENGINE SHUTDOWN CHECKS	S
26	SPECIAL PROCEDURES	S
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SAMPLE

DA FORM 5051-7-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE OH-6 MTF MANEUVERS GRADE SLIP

4-11. OH-6 MP TASKS.

TASK NO: TF 4600

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In an OH-6 helicopter, before flight.

STANDARDS:

1. TM 55-1520-214-CL used.
2. Items checked in sequence.
3. Aircraft suitability for flight correctly determined.
4. Maneuvers, checks, and tasks required for test flight determined.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-214-CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operation around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1520-214-10
TM 55-1520-214-CL

TASK NO: TF 4602

TASK: Perform before-starting engine checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4605

TASK: Perform starting engine checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-214-23 series
TM 55-1520-214-MTF
TM 55-2840-231-23
or
TM 55-2840-241-23

TASK NO: TF 4610

TASK: Perform engine run-up checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-214-23 series
TM 55-1520-214-MTF

TASK NO: TF 4614

TASK: Perform baseline and normal engine health indicator test (HIT).

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Items checked under correct conditions and in proper sequence.

3. Required readings recorded on HIT log.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Use HIT log to perform HIT check. Use computation sheet to perform baseline HIT.

REFERENCES:

TM 55-1520-214-MTF
TM 55-2840-231-23
or
TM 55-1520-214-23 series
TM 55-2840-241-23

TASK NO: TF 4615

TASK: Perform before-takeoff checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4620

TASK: Perform takeoff to a hover.

CONDITION: In an OH-6 helicopter, with before-takeoff checks completed.

STANDARDS:

1. Aircraft cleared.
2. Cyclic, collective, and pedal control responses noted.
3. Hover altitude of 3 feet ±1 foot maintained.
4. Apparent center of gravity noted.
5. Smooth power increase of 1.5 percent to 2 percent N2 noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Clear aircraft. Ensure that all control and instrument indications are normal; increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading; and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal and no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude and check that N2 has increased from 1.5 percent to 2 percent. While hovering into the wind, note that cyclic and pedal positions are normal for conditions. Check parking area for indications of leaks. Hover to test hover area.

REFERENCES:

TM 55-1520-214-10
TM 55-1520-214-MTF

TASK NO: TF 4632

TASK: Perform hovering turns.

CONDITION: In an OH-6 helicopter, with hover power check completed.

STANDARDS:

1. Aircraft cleared.

2. Hover altitude of 3 feet ±1 foot maintained.

3. Pedal turns not to exceed 90° rate of turn in 4 seconds.

4. Tail rotor response and rigging noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn. Note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° to either side of wind direction.

REFERENCES:

TM 55-1520-214-10
TM 55-1520-214-CL
TM 55-1520-214-MTF

TASK NO: TF 4634

TASK: Perform sideward flight.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Aircraft cleared.

2. Hover altitude maintained at 3 feet ±1 foot.

3. Aircraft headed into wind. Flight path approximately perpendicular to wind direction maintained.

4. Cyclic response noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive input is required and that the desired aircraft response is achieved. Neutralize cyclic; aircraft should drift to a stop.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4636

TASK: Perform forward-hovering flight.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Aircraft cleared.

2. Aircraft headed into wind.

3. Cyclic response and rigging noted.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight. Turn the tail of the aircraft into the wind. Apply a sufficient amount of aft cyclic to accelerate rearward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Return to normal hovering flight and turn the nose of the aircraft into the wind.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4650

TASK: Perform engine response check.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. Aircraft cleared.

3. Altitude does not exceed 25 feet.

4. Engine response noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch; then reduce collective before excessive altitude is gained. Climb should not exceed 25 feet. Engine should respond smoothly and rapidly.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4652

TASK: Perform low-RPM hover.

CONDITION: In an OH-6 helicopter, during the day, under VMC.

STANDARDS:

1. Aircraft cleared.
2. Aircraft headed into wind.
3. Hover altitude of 3 feet ±1 foot maintained.
4. Controllability noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Slowly decrease N2 RPM to full decrease using governor RPM switch while maintaining a stabilized hover. Check controllability at low RPM. Check antitorque controllability by performing 45° hovering turns. Increase N2 RPM to 103 percent.

CAUTION

MP should consider wind velocity, direction, load, and density altitude in order to minimize risk of LTE.

REFERENCES:

TM 55-1520-214-10
TM 55-1520-214-MTF

TASK NO: TF 4653

TASK: Perform magnetic compass compensation.

CONDITION: In an OH-6 helicopter or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-214-23

TASK NO: TF 4665

TASK: Perform control-rigging check.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Airspeed of 80 KIAS ±5 KIAS maintained.

2. Torque of 40 psi maintained.

3. Aircraft maintained in trim.

4. Cyclic and pedal positions noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain appropriate airspeed, torque, and trim. Check that cyclic is nearly centered, that trim actuators maintain cyclic position, and right pedal is approximately 1½ inches forward.

REFERENCES:

TM 55-1520-214-23
TM 55-1520-214-MTF

TASK NO: TF 4670

TASK: Perform autorotation RPM check.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Power recovery performed before reaching 500 feet AGL.
2. Airspeed of 60 KIAS +5 -0 KIAS maintained.
3. Suitable landing area within gliding distance.
4. Correct autorotation entry procedures performed.
5. Rotor RPM, trim, and vibration level noted.
6. Correct power-recovery procedure performed.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining 60 KIAS, simultaneously reduce throttle to engine idle and lower collective to minimum. Note and record RPM in stabilized autorotation. Note vibration level and that sufficient right pedal remains. Make power recovery before descending below 500 feet AGL.

REFERENCES:

TM 55-1520-214-23
TM 55-1520-214-MTF

TASK NO: TF 4672

TASK: Perform engine performance check (EPC).

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Aircraft headed into wind and N2 is 103 percent.
2. Cruise flight maintained at an altitude of 500 feet AGL or above.
3. Altimeter set to 29.92.
4. Climb established and maintained at 70 KIAS ±5 KIAS.
5. No limitations exceeded.
6. Appropriate readings recorded at test altitude.
7. EPC data analyzed.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish normal cruise flight at the selected altitude of 500 feet AGL or above into the wind. Set altimeter to 29.92. Ensure that all bleed air and nonessential electrical items are turned off. Initiate a moderate climb at 70 KIAS. At 300 to 400 feet before reaching the test altitude, smoothly increase collective until the maximum limit of TOT, N1, or torque is achieved at 103 percent N2 at the selected test altitude. Record torque, N1, TOT, PA, and FAT. Return to test altitude and verify the FAT. Determine whether the readings are within limits and whether the required torque is available before continuing test flight. Ensure that any N2 droop recovers to 103 percent within 5 seconds.

REFERENCES:

TM 55-1520-214-10
TM 55-1520-214-23
TM 55-1520-214-MTF
TM 55-2840-231-23
or
TM 55-2840-241-23

TASK NO: TF 4683

TASK: Perform vibration analysis (without Vibrex).

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. VNE determined at test altitude.

2. Tracking steps completed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform tracking evaluation with gross weight 1900 to 2200 pounds. All tracking evaluations will be accomplished at 103 percent N2. Perform a series of 45° banked turns at 80 to 100 KIAS. Observe track for changes from level flight. Continue tracking evaluation to VNE. Complete tracking adjustments as necessary. Accomplish autorotation RPM check after last blade-tracking adjustment.

REFERENCES:

TM 55-1520-214-23
TM 55-1520-214-MTF

TASK NO: TF 4684

TASK: Perform collective bungee check.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. VNE determined at flight altitude.

2. Halfway index identified on collective friction.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform flight evaluation of collective forces with takeoff weight at 2200 pounds, N2 at 103 percent, and zero collective stick friction. Flying at 60 KIAS, note collective forces in level flight. Continue flying at 60 KIAS and note collective forces using 75-psi torque. Fly aircraft to VNE with collective forces being canceled using friction at halfway index.

REFERENCES:

TM 55-1520-214-23
TM 55-1520-214-MTF

TASK NO: TF 4685

TASK: Perform flight instruments check.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Altitude maintained according to local directives.

2. Flight instruments checked.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Fly at different airspeeds and altitudes, checking performance of all installed flight instruments.

REFERENCES:

TM 55-1520-214-10
TM 55-1520-214-MTF

TASK NO: TF 4690

TASK: Perform communication and navigation equipment checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. Altitude maintained according to local directives.

2. Airspeed maintained as required.

3. All installed avionics equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform checks according to appropriate publications.

REFERENCES:

TM 55-1520-214-10
TM 55-1520-214-MTF

TASK NO: TF 4692

TASK: Perform before-landing checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4695

TASK: Perform after-landing checks.

CONDITION: In an OH-6 helicopter.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCE:

TM 55-1520-214-MTF

TASK NO: TF 4698

TASK: Perform engine-out/reignition check.

CONDITION: In an OH-6 helicopter, after landing.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With the collective full down and the throttle at engine idle, rotate the throttle to full open. Observe that no reignition occurs if the N2 reaches 95 percent or more in 3.5 seconds or less after the throttle is opened. Pull the fuel shutoff valve to the full up position, noting an almost immediate engine shutdown. Note that reignition occurs as the N2 decreases to 95 percent. Close the throttle to the off position and reposition the fuel valve to the open position. Note that the transmission warning, engine out audio, and engine out light are on. Perform another start and allow engine to stabilize at idle. Close the throttle and note that the reignition illuminates as the N1 passes through 55 percent.

CAUTION

Heading control must be maintained with proper pedal application. Rapid acceleration may cause excessive torsional forces.

REFERENCES:

TM 55-1520-214-23
TM 55-1520-214-MTF

TASK NO: TF 4699

TASK: Perform engine shutdown checks.

CONDITION: In an OH-6 helicopter, after landing.

STANDARDS:

1. TM 55-1520-214-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-214-23
TM 55-1520-214-MTF

TASK NO: TF 4699.1

TASK: Perform special/detailed procedures.

CONDITION: In an OH-6 helicopter with equipment installed.

STANDARDS:

1. TM 55-1520-214-MTF with changes used.

2. Additional publications used as required.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-214-10
TM 55-1520-214-23 series
TM 55-1520-214-CL
TM 55-1520-214-MTF
TM 55-2840-231-23

CHAPTER 5

UTILITY HELICOPTER MAINTENANCE TEST PILOT TASKS

5-1. GENERAL. This chapter contains the utility helicopter maintenance test pilot tasks and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. If discrepancies are found between this chapter and the MTF manual, the MTF manual takes precedence. Submit DA Form 2028 as directed in the preface of this manual.

5-2. UH-1 MP TASK LIST.

Task number	Task title
TF 5200	Perform prior-to-maintenance test flight checks.
TF 5202	Perform before-starting engine checks.
TF 5205	Perform starting engine checks.
TF 5210	Perform engine run-up checks.
TF 5214	Perform baseline and normal engine health indicator test (HIT).
TF 5216	Perform takeoff to a hover.
TF 5218	Perform torquemeter/power check.
TF 5220	Perform hovering turns.
TF 5222	Perform sideward flight.
TF 5224	Perform forward-hovering flight.
TF 5227	Perform pylon mount check.
TF 5233	Perform engine response check.
TF 5236	Perform power cylinder check.
TF 5239	Perform low-RPM hover.
TF 5242	Perform manual throttle operations, emergency governor mode.
TF 5243	Perform magnetic compass compensation.
TF 5245	Perform take-off and climb-out checks.
TF 5251	Perform level-off check.
TF 5254	Perform control-rigging check.
TF 5257	Perform autorotation RPM check.
TF 5260	Perform hydraulics-off check (UH-1E, H, and V only).
TF 5263	Perform engine-topping check.
TF 5266	Perform stabilizer bar check.
TF 5270	Perform 70-KIAS, 10-psi descent.
TF 5272	Perform vibration analysis during increasing airspeeds.
TF 5278	Perform cyclic-rigging check.
TF 5281	Perform flight instruments check.
TF 5290	Perform communication and navigation equipment checks.
TF 5295	Perform after-landing and engine shutdown checks.
TF 5296	Perform special/detailed procedures.

5-3. UH-1 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (UH-1)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, Joe M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	STARTING ENGINE CHECKS	S
4	ENGINE RUN-UP CHECKS	S
5	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
6	TAKEOFF TO A HOVER	S
7	HOVERING TURNS	S
8	SIDEWARD FLIGHT	S
9	FORWARD-HOVERING FLIGHT	S
10	PYLON MOUNT CHECK	S
11	TORQUEMETER/POWER CHECK	S
12	ENGINE RESPONSE CHECK	S
13	POWER CYLINDER CHECK	S
14	LOW-RPM HOVER	S
15	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	S
16	MAGNETIC COMPASS COMPENSATION	S
17	TAKEOFF AND CLIMB-OUT CHECKS	S
18	LEVEL-OFF CHECK	S
19	CONTROL-RIGGING CHECK	S
20	AUTOROTATION RPM CHECK	S
21	HYDRAULICS-OFF CHECK (UH-1E, H, AND V ONLY)	S
22	ENGINE-TOPPING CHECK	S
23	STABILIZER BAR CHECK	S
24	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	S
25	70-KIAS, 10-PSI DESCENT	S
26	CYCLIC-RIGGING CHECK	S
27	FLIGHT INSTRUMENTS CHECK	S
28	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
29	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
30	SPECIAL PROCEDURES	S
31	ORAL EVALUATION	S
32	JMB	
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SAMPLE UH-1 MTF MANEUVERS GRADE SLIP

5-4. TASK CONTENT. Each task contains a task number and title, conditions, standards, description, and references as appropriate.

a. *Task Number and Title.* Each task is identified by a task number and title that correspond to the MP task lists in paragraphs 5-2 for the UH-1 and 5-6 for the UH-60.

b. *Condition.* The condition statement includes the resources that are available to the MP to perform the task, the circumstances—including environmental factors—in which it will be performed, and any applicable restrictions.

c. *Standards.* The standards describe those elements of performance that must be completed satisfactorily and in the proper sequence to achieve successful performance of the task. Standards may be objective (measurable) or subjective (judgmental).

d. *Description.* This paragraph provides, in narrative form, any additional information that may be needed to explain how the task should be performed to meet the standards.

e. *References.* Publications that must be used or are helpful in performing the task are listed.

5-5. UH-1 MP TASKS.

TASK NO: TF 5200

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In a UH-1 helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-210/220-CL used.
2. Items checked in sequence.
3. Aircraft suitability for flight correctly determined.
4. Maneuvers, checks, and tasks required for test flight determined.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-210/220-CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operation around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1520-210-10
TM 55-1520-210-CL
TM 55-1520-220-10
TM 55-1520-220-CL

TASK NO: TF 5202

TASK: Perform before-starting engine checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. TM 55-1520-242-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-210-10
TM 55-1520-210-23-1
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5205

TASK: Perform starting engine checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. TM 55-1520-242-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-210-10
TM 55-1520-210-23-1
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5210

TASK: Perform engine run-up checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. TM 55-1520-242-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-210-10
TM 55-1520-210-23-1
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5214

TASK: Perform baseline and normal engine health indicator test (HIT).

CONDITION: In a UH-1 helicopter or orally.

STANDARDS:

1. TM 55-1520-242-MTF or TM 55-2840-229-1 used.

2. Items checked under correct conditions and in proper sequence.

3. Required readings recorded on HIT log.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Use HIT log to perform HIT check. Use computation sheet to perform baseline HIT.

REFERENCES:

TM 55-1520-242-MTF
TM 55-2840-229-23-1

TASK NO: TF 5216

TASK: Perform takeoff to a hover.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Aircraft cleared.

2. Cyclic, collective, and pedal control responses normal.

3. Gradual vertical ascent performed to a 3-foot hover ±1 foot.

4. Apparent center of gravity normal.

5. Droop cam operation normal.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure; apply antitorque pedals as needed to maintain heading; and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude and check that N2 speed remains constant within ±40 RPM. While hovering into the wind, ensure that cyclic is nearly centered and pedal position is normal. Check parking area for indications of leaks.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5218

TASK: Perform torquemeter/power check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Hover stabilized at 5 feet ±1 foot.

2. Aircraft headed into wind.

3. Toque indication noted.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Note torque indication and compare with performance planning card (PPC); analyze and resolve differences.

REFERENCES:

TC 1-211
TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5220

TASK: Perform hovering turns.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Aircraft cleared.

2. Left and right turns of 90° to either side of wind direction, not to exceed a 90° rate of turn in 4 seconds performed.

3. Tail rotor response and rigging noted.

4. Flight instrument response normal.

5. A 5-foot hover ±1 foot maintained.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn. Note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° to either side of wind direction.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5222

TASK: Perform sideward flight.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Aircraft cleared.
2. Left and right sideward flight performed.
3. Aircraft headed into wind and flight path maintained approximately perpendicular to wind direction.
4. Cyclic response noted.
5. A 5-foot altitude ±1 foot maintained.
6. Hover speed maintained consistent with autorotational capabilities.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive inputs are required. Neutralize cyclic; aircraft should coast to a stabilized hover.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5224

TASK: Perform forward-hovering flight.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Aircraft cleared.

2. Aircraft headed into wind at a 5-foot hover ±1 foot.

3. Forward-hovering flight to ETL performed.

4. Cyclic response noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Terminate the maneuver by decelerating to normal hovering flight.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5227

TASK: Perform pylon mount check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Hover stabilized.

2. Aircraft headed into wind.

3. A 5-foot hover ±1 foot maintained.

4. Pylon rock induced.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Move the cyclic fore and aft, not to exceed 2 to 3 inches, at a rate sufficient to induce pylon rock. Neutralize the cyclic and note the number of cycles (beats) required to dampen pylon rocking. Bumping must dampen out within five cycles (beats). Note that no abnormal vibrations or engine surges occur. Hydraulic caution light must not illuminate.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5233

TASK: Perform engine response check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. Aircraft cleared.

3. Engine response noted.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: From a stabilized hover, make a positive application of collective pitch. Engine should respond smoothly and rapidly. No stalls or surges should occur. During the engine response check, N2 may droop in excess of 40 RPM depending upon the amount and rate of power application. If N2 droops during the engine response check, it must recover prior to collective reduction or 50 feet.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF
TM 55-2840-229-23-1 and -2

TASK NO: TF 5236

TASK: Perform power cylinder check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Copilot/observer briefing complete, to include emergency procedure for induced control lockup.
2. Aircraft headed into wind.
3. A 10- to 15-foot altitude maintained.
4. Power cylinder check performed.
5. Position over the ground ±10 feet maintained.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Move the cyclic smoothly and progressively up to 6 to 8 inches along a 45° line from left rear to right forward quadrant several times (3-5 strokes); note that operation of the right cyclic servo is smooth and without restriction. Check the left servo similarly by moving the cyclic from right rear to left forward quadrant. Check to ensure that the hydraulic boost system functions properly if the cyclic is moved at a rate more rapid than normal. Hydraulic caution segment light must not illuminate. (Check UH-1C and M models by turning off one hydraulic system at a time.)

REFERENCES:

TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5239

TASK: Perform low-RPM hover.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Aircraft headed into wind.
2. A 5-foot hover ±1 foot maintained.
3. Using governor increase/decrease switch, N2 RPM decreased to 6000.
4. Hovering turns performed 45° left and right of initial heading.
5. Controllability noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Slowly decrease N2 RPM to 6000 with governor increase/decrease switch while maintaining a stabilized hover. Check for controllability and control positions. Check antitorque controllability by performing 45° hovering turns. Check that no excessive lateral vibrations are evident. Increase RPM to 6600 while maintaining appropriate altitude.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5242

TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Without error, procedures performed to change governor to emergency mode according to description below.

2. RPM 6400 ±200 maintained.

3. Positive aircraft control maintained.

4. A 5-foot hover ±1 foot maintained.

5. Engine performance throughout maneuver noted.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

CAUTION

To prevent overspeed, overtemperature, compressor stall, or engine failure, make smooth throttle and collective adjustments. Closely monitor N1, N2, and EGT.

NOTE: A fluctuation of the torquemeter may occur between 6300 and 6500 RPM as a result of transient opening and closing of the bleed band (bleed-band cycle) and is not abnormal. If it is determined the bleed-band cycle cannot be controlled, the GOV DECR switch may be depressed(beeped down) to eliminate the cycle effect.

DESCRIPTION: While on the ground with RPM stabilized at 6600 RPM and collective full down, retard the throttle to the engine-idle stop. After noting a decrease in engine N1 RPM to engine idle RPM, move the governor switch to the emergency position. Note a decrease in engine RPM and proper caution light operation. Smoothly adjust the throttle to 6400 RPM. Increase the collective and manipulate the throttle carefully to maintain 6400 RPM until the aircraft is stabilized at a 5-foot hover. Apply cyclic and pedals as necessary to remain stationary and to maintain a constant heading. Adjust the collective and throttle to maintain 6400 RPM and land the aircraft. Reduce the throttle to the engine idle stop and place the governor switch in the auto position. Note the N1 is stabilized at engine idle RPM, and the caution light is out. Increase throttle to the full open position and verify proper N2 RPM setting.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF
TM 55-2840-229-23-1 and -2

TASK NO: TF 5243

TASK: Perform magnetic compass compensation.

CONDITION: In a UH-1 helicopter or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-210-23

TASK NO: TF 5245

TASK: Perform take-off and climb-out checks.

CONDITION: In a UH-1 helicopter, with 2-foot hover power recorded.

STANDARDS:

1. Aircraft cleared.

2. Normal takeoff performed.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform normal take-off and climb-out to initial test altitude. Note proper aircraft response, vibration levels, and instrument operation.

REFERENCES:

TC 1-211
TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5251

TASK: Perform level-off check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Predetermined altitude ±100 feet maintained.

2. Instrument readings correctly recorded.

3. Airspeed indicators checked using 2-foot hover power torque.

4. Fuel consumption check begun.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Climb to predetermined altitude. Using 2-foot hover power torque, maintain constant altitude, airspeed, and heading. Record engine oil pressure and temperature. Record transmission oil pressure and temperature. Record exhaust gas temperature. Check airspeed indicators for approximately 90 N/100 R KIAS. Begin fuel consumption check.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5254

TASK: Perform control-rigging check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Force trim turned on.
2. Airspeed of 90 N/100 R KIAS ±5 KIAS established.
3. Torque maintained at 30 psi.
4. Needle and ball centered.
5. Lateral cyclic and pedal positions noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain airspeed at 90 N/100 R KIAS ±5 KIAS, torque, and centered needle and ball. Note that the cyclic is nearly centered laterally and right pedal is 1 to 2 inches forward of left pedal. (Pedals should be aligned on UH-1C and M.)

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5257

TASK: Perform autorotation RPM check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Suitable landing area is within gliding distance.
2. Airspeed of 50 N/60 R KIAS +5 -0 KIAS established.
3. Correct autorotation entry procedure performed.
4. Autorotation descent at an altitude sufficient to allow power recovery at or above 500 feet AGL begun.
5. Proper rotor RPM, N1, trim, vibrations, and torque noted.
6. Correct power-recovery procedure performed.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish radio communication for maneuver coverage and verify landing area is suitable. Maintain airspeed at 50 N/60 R KIAS +5 -0 KIAS and smoothly lower collective to full down position, noting that main rotor does not overspeed. Reduce throttle to engine idle position. Note that N1 has stabilized at engine idle (68 to 72 percent), needle and ball are centered, torque is at or near zero, some right pedal remains, no unusual vibrations are present, and rotor has stabilized at proper RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined), and increase collective to a power setting that will establish a definite climb.

REFERENCES:

AR 95-1
TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5260

TASK: Perform hydraulics-off check (UH-1E, H, and V only).

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Airspeed maintained at 80 KIAS ±10 KIAS.

2. Copilot/observer briefing completed.

3. Aircraft controllability check performed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Have copilot/observer identify and turn off hydraulic control switch. Note that master caution and hydraulics-off caution panel segment lights are lit; then reset master caution. Check cyclic forces by making cyclic inputs to the left and right forward quadrants. The cyclic forces in the right forward quadrant should be approximately equal to the cyclic forces in the left forward quadrant. Check collective forces by decreasing collective to 10- to 13-psi torque. Then increase collective to achieve 33- to 35-psi torque. Use pedals to maintain a trim condition. Reduce collective to cruise power torque; then have copilot/observer return hydraulic control switch to ON. Note that master caution and caution panel segment lights are off. Throughout the maneuver, ensure that feedback forces are not excessive and that all control movements produce the desired results.

REFERENCES:

TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5263

TASK: Perform engine-topping check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Bleed-air heater and deice switches OFF and one altimeter set at 29.92.
2. Airspeed of 80 KIAS ±10 KIAS maintained.
3. Topping altitude predetermined.
4. Airspace maintained according to local directives.
5. Engine topping performed.
6. Topping data analyzed and recorded according to TM 55-2840-229-23-1.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Predetermine topping altitude in accordance with TM 55-1520-242-MTF. Climb at a moderate rate until 500 to 1000 feet below estimated topping altitude. Monitor torque, N1, and EGT to ensure engine limits are not exceeded. Increase collective until N2 droops to 6400 RPM. Maintain N2 at 6400 RPM with the collective control. At the next whole thousand-foot altitude, record indicated torque, N1, EGT, and pressure altitude. Increase collective to further droop N2 to 6200 RPM and note N1 does not increase. Reduce collective smoothly and slowly to descend to topping altitude. Fly at topping altitude for one minute, then record free air temperature. Reset altimeter to current setting. If N2 does not droop prior to or at the estimated topping altitude, maintain maximum torque until N2 droops or 10,000 feet pressure altitude is exceeded. If 10,000 feet pressure altitude is reached prior to N2 droop, note the indicated torque and outside air temperature. Compute TEAC data computations and determine entries to be made on aircraft historical records.

> **NOTE:** Actual engine topping is not required to occur during training and evaluation. The intent is to demonstrate maneuver proficiency.

REFERENCES:

DA Pam 738-751
TM 55-1520-242-MTF
TM 55-2840-229-23-1 and -2

TASK NO: TF 5266

TASK: Perform stabilizer bar check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Force trim turned on.

2. Predetermined altitude ±100 feet maintained.

3. Airspeed of 80 KIAS ±10 KIAS maintained.

4. Turns left or right performed.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Method 1: Maintaining level flight, depress the force trim release button and apply cyclic laterally until a 10° to 20° angle of bank is established. Simultaneously stop cyclic movement and release force trim button; note the number of seconds required for the angle of bank to begin increasing. Following time should be 5 seconds ±1 second.

Method 2: Establish and maintain a constant 10° to 20° angle of bank for a minimum of 10 seconds (either left or right). Depress the force trim release button and apply cyclic until level flight is established. Simultaneously stop cyclic movement and release the force trim release button; note the number of seconds required for the bank angle to begin increasing in the opposite direction. Following time should be 5 seconds ±1 second.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5270

TASK: Perform 70-KIAS, 10-psi descent.

CONDITION: In a UH-1 helicopter or orally.

STANDARDS:

1. Aircraft flown at 70 KIAS, straight and level. Vibration level noted.

2. Power reduced to 10 psi.

3. Changes in vibration level from straight and level flight noted.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While flying straight and level at 70 KIAS, note vibration level. Maintain 70 KIAS and reduce power to 10-psi torque. Note changes in vibration level. Reestablish 70 KIAS straight and level flight.

> **NOTE:** Use 70 KIAS for training and evaluation purposes. The actual airspeed that the 1:1 vibration is encountered may be different. Perform the maneuver during an actual test flight at the airspeed where the 1:1 vibration becomes noticeable.

REFERENCES:

TM 55-1520-210-23-1 through -3
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5272

TASK: Perform vibration analysis during increasing airspeeds.

CONDITION: In a UH-1 helicopter or orally.

STANDARDS:

1. VNE computed.
2. Airspeed of 70 KIAS established.
3. Predetermined altitude ±100 feet maintained.
4. Airspeed increased in 10-KIAS increments.
5. Changes in vibration level noted.
6. Malfunctions or discrepancies correctly determined andcorrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintaining straight and level flight, slowly increase airspeed from 70 KIAS up to VNE in 10-KIAS increments (unless vibrations become uncomfortably severe). Note airspeed at which vibration level changes. At no time will VNE be exceeded for the existing conditions. Reestablish normal flight.

REFERENCES:

TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5278

TASK: Perform cyclic-rigging check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. VNE computed.
2. Predetermined altitude ±100 feet maintained.
3. Airspeed increased to VNE.
4. Cyclic position ONLY noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With the center of gravity approximately neutral, maintain aircraft in trim, increase airspeed to VNE, and note cyclic position. A minimum of 2 inches should remain between the pilot's cyclic and the instrument panel. Reestablish normal flight.

REFERENCES:

TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5281

TASK: Perform flight instruments check.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Flight instruments checked.

2. Altitude maintained according to local directives.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Fly at varied airspeeds, attitudes, and altitudes, checking performance of the following instruments: airspeed and attitude indicators, altimeters, gyro compass, vertical speed, standby compass, turn and slip indicator, clock, and instrument panel.

REFERENCES:

TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5290

TASK: Perform communication and navigation equipment checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. Altitude maintained as directed.

2. Airspeed maintained as required.

3. All installed avionics equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check position of all installed equipment as indicated in the appropriate manuals. Check all communication radios on at least two frequencies including guard frequency. Check navigation radios for correct needle indication to and from a tuned station. Check transponder with nearest ATC facility to include emergency squawk.

REFERENCES:

TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF

TASK NO: TF 5295

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-1 helicopter.

STANDARDS:

1. TM 55-1520-242-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-210-10
TM 55-1520-220-10
TM 55-1520-242-MTF

TASK NO: TF 5296

TASK: Perform special/detailed procedures.

CONDITION: In a UH-1 helicopter with equipment installed.

STANDARDS:

1. TM 55-1520-242-MTF with changes used.
2. Additional publications used as required.
3. Oral call-out and confirmation method used.
4. Items checked in sequence.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-210-10
TM 55-1520-210-23-1 through -3
TM 55-1520-210-CL
TM 55-1520-220-10
TM 55-1520-220-23-1 through -3
TM 55-1520-242-MTF
TM 55-2840-229-23-1 and -2

5-6. UH-60 MP TASK LIST.

Task number	Task title
TF 5600	Perform prior-to-maintenance test flight checks.
TF 5607	Perform interior checks.
TF 5610	Perform before-starting engine checks.
TF 5613	Perform starting engine checks.
TF 5616	Perform ECU lockout/Np overspeed check.
TF 5619	Perform acceleration/deceleration check.
TF 5621	Perform electrical systems checks.
TF 5624	Perform baseline engine and normal engine health indicator test (HIT)/anti-ice.
TF 5627	Perform before-takeoff checks.
TF 5630	Perform ground taxi.
TF 5633	Perform hover controllability check.
TF 5636	Perform SAS checks.
TF 5639	Perform FPS check.
TF 5642	Perform tail rotor servo check.
TF 5645	Perform generator underfrequency protection disable/low rotor RPM check.
TF 5648	Perform compass turn rate vertical gyro checks.
TF 5649	Perform magnetic compass compensation.
TF 5651	Perform takeoff/climb checks.
TF 5657	Perform autorotation RPM checks.
TF 5660	Perform in-flight controllability check.
TF 5663	Perform maximum power check.
TF 5666	Perform stabilator check at 120 KIAS.
TF 5669	Perform FPS/SAS check during flight.
TF 5672	Perform Vh check.
TF 5675	Perform communication and navigation equipment checks.
TF 5677	Perform special/detailed procedures.
TF 5678	Perform after-landing and engine shutdown checks.

5-7. UH-60 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (UH-60)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	INTERIOR CHECKS	S
3	BEFORE-STARTING ENGINE CHECKS	S
4	STARTING ENGINE CHECKS	S
5	ECU LOCKOUT/Np OVERSPEED CHECK	S
6	ACCELERATION/DECELERATION CHECK	S
7	ELECTRICAL SYSTEMS CHECKS	S
8	BASELINE AND ENGINE HEALTH INDICATOR TEST (HIT)/ANTI-ICE	S
9	BEFORE-TAKEOFF CHECK	S
10	GROUND TAXI	S
11	HOVER CONTROLLABILITY CHECK	S
12	SAS CHECK	S
13	FPS CHECK	S
14	TAIL ROTOR SERVO CHECK	S
15	GENERATOR UNDER-FREQUENCY DISABLE/LOW ROTOR RPM CHECK	S
16	COMPASS TURN RATE VERTICAL GYRO CHECK	S
17	MAGNETIC COMPASS COMPENSATION	S
18	TAKEOFF/CLIMB CHECK	S
19	AUTOROTATION RPM CHECKS	S
20	IN-FLIGHT CONTROLLABILITY CHECKS	S
21	MAXIMUM POWER CHECK	S
22	STABILATOR CHECK AT 120 KIAS	S
23	FPS/SAS CHECKS DURING FLIGHT	S
24	Vh CHECK	S
25	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
26	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
27	SPECIAL PROCEDURES	S
28	ORAL EVALUATION	S
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NOTE ITEMS 29 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-3-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE UH-60 MTF MANEUVERS GRADE SLIP

5-8. UH-60 MP TASKS.

TASK NO: TF 5600

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: With a UH-60A/L/EH-60 helicopter.

STANDARDS:

1. TM 55-1520-237-CL with changes used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. Aircraft suitability for flight correctly determined.
5. Maneuvers, checks, and tasks required for test flight determined.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-237-CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew members and any supporting ground crew concerning operation on or around the helicopter and ensure ground communication capability is adequate. Stress any applicable safety considerations or procedures during the briefing.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-237-10
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-1520-237-23-1 through -8

TASK NO: TF 5607

TASK: Perform interior checks.

CONDITION: In a UH-60A/L/EH-60 helicopter.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: The detailed checks required will be determined by the type of test flight to be performed (general/limited). At a minimum, all checks required for flight by TM 55-1520-237-10-CL will be performed.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-237-10
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-1520-237-23-1 through -8

TASK NO: TF 5610

TASK: Perform before-starting engine checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

ARs 95-1 and -3
TM 55-1520-237-10
TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

TASK NO: TF 5613

TASK: Perform starting engine checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Brief the copilot and crew as required to assist in the accomplishment of the task. This briefing may vary dependent on pilot preference, engine maintenance performed, and crew qualification. The briefing will, at a minimum, include crew duties in the event of an emergency. Complete the task accomplishing all requirements of TM 55-1520-237-MTF or TM 55-1520-237-CL.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-237-10
TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

TASK NO: TF 5616

TASK: Perform ECU lockout/Np overspeed check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensure that parking brake is set, tail wheel is locked, and collective is full down. Momentarily advance ENG POWER CONT lever, for engine being checked, full forward to LOCKOUT. Immediately bring lever back to near vertical (about 6 o'clock) position. Slowly advance lever to a position where torque is matched at 100 percent RPMR; continue to advance lever slowly above 100 percent. At 106 percent ±1 percent (GE 700), the overspeed system should engage. On GE 701-C engine, stop RPMR increase at 106 percent RPMR. After ensuring that the Np overspeed system is functioning normally (GE 700) or that ECU LOCKOUT is attained (GE 701-C), reengage ECU by bringing the ENG POWER CONT lever back to idle. Slowly return to the fly detent. Monitor percent of RPM to make certain the automatic mode has reengaged.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

TASK NO: TF 5619

TASK: Perform acceleration/deceleration check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensure that both ENG POWER CONT levers are at FLY, percent RPM 1 and 2 are trimmed to 100 percent, brakes are set, and tail wheel is locked. Note Ng speed for engine being checked. Retard ENG POWER CONT lever to IDLE, allow to stabilize, and rapidly advance until Ng speed peaks at or above noted speed. Then rapidly retard the ENG POWER CONT lever to IDLE. Monitor engine performance ensuring that there is no acceleration or deceleration stall.

REFERENCES:

AR 95-1
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

TASK NO: TF 5621

TASK: Perform electrical systems checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensure that all checks are done properly, in the correct sequence, and in accordance with TM 55-1520-237-MTF.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-1520-237-23-1 through -8

TASK NO: TF 5624

TASK: Perform baseline engine and normal engine health indicator test (HIT)/anti-ice.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

5. HIT Baseline Worksheet completed (may be conducted orally).

DESCRIPTION: Use HIT log to perform HIT anti-ice check.

REFERENCES:

TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

TASK NO: TF 5627

TASK: Perform before-takeoff checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform before-takeoff checks in accordance with TM 55-1520-277-MTF or TM 55-1520-237-CL. Perform special mission tasks as required.

REFERENCES:

AR 95-1
TM 55-1520-237-10
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
Appropriate special publications

TASK NO: TF 5630

TASK: Perform ground taxi.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. Outside area clear.

2. Chocks removed.

3. Doors secure.

4. Parking brakes released.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While performing ground taxi, pilot and copilot check their brakes independently. Check tail-wheel lock for operation. Taxi/hover to the test flight hover area.

REFERENCES:

TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5633

TASK: Perform hover controllability check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS with before-takeoff check completed.

STANDARDS:

1. Aircraft cleared.

2. Cyclic, collective, and pedal-control response normal.

3. Gradual vertical ascent to a 10- to 15-foot hover performed.

4. Apparent center of gravity normal.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure. Apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude. While hovering into the wind, ensure that cyclic is about 1 inch forward of neutral and left pedal is about 1½ inches forward of neutral.

REFERENCES:

TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5636

TASK: Perform SAS checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.
2. Oral call-out and confirmation method used.
3. Aircraft cleared.
4. Minimum hovering altitude (20 to 25 feet) maintained.
5. Aircraft headed into wind.
6. Controllability checked.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Head aircraft into the wind, check switch positions, and clear aircraft. Move cyclic forward or aft without releasing trim to get a 3° pitch attitude change; allow cyclic to return to trimmed position. Aircraft pitch rate should be dampened. Repeat in the opposite direction. Move cyclic left or right, without releasing trim, to get a 5° to 7° roll attitude change; allow cyclic to return to trimmed position. Roll rate should be dampened. Repeat in the opposite direction. Return aircraft to a 10- to 15-foot hover, note heading, and clear aircraft overhead. Make a 20 percent torque change without releasing yaw trim. Note aircraft heading does not change more than 15° going up. Reduce torque to hover power and allow aircraft to return to a 10- to 15-foot hover. Repeat pitch, roll, and yaw checks for the opposite SAS. Only one SAS check is required to complete an evaluation.

REFERENCES:

TM 1-1500-328-25
TM 11-1520-237-23-1 through -3
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-1520-237-23-1 through -8

TASK NO: TF 5639

TASK: Perform FPS check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.
2. Oral call-out and confirmation method used.
3. Aircraft cleared.
4. Minimum hovering altitude (20 to 25 feet) maintained.
5. Aircraft headed into wind.
6. Controllability checked.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Head aircraft into the wind, check switch positions, and clear aircraft. While guarding flight controls, allow the helicopter to hover without pilot input. Note hands-off attitude retention to be ±°1 in the pitch and roll axis and ±2° in the yaw axis. Increase hover altitude to 20 to 25 feet. Move cyclic forward or aft without releasing trim to get a 5° pitch attitude change; allow cyclic to return to trimmed position. Aircraft roll attitude should return to the trimmed position with no more than one 3° overshoot. Repeat in the opposite direction. Return aircraft to a 10- to 15-foot hover, note heading, and clear aircraft overhead. Without releasing yaw trim, make a 20 percent torque increase and return to hover torque. Note aircraft heading does not change more than ±15°.

REFERENCES:

TM 1-1500-328-25
TM 11-1520-237-23-1 through -3
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5642

TASK: Perform tail rotor servo check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Aircraft headed into wind.

3. Copilot briefing completed.

4. Hovering altitude of 10 to 15 feet maintained.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Land aircraft and conduct copilot briefing. The briefing may vary in content but, at a minimum, will include commands to be used and duties of the copilot in the event of loss of tail rotor controllability. Have the copilot identify tail rotor servo switch and move it to the backup position. Note that the No. 1 TAIL ROTOR SERVO caution light, master caution light, BACKUP PUMP, and the No. 2 TAIL ROTOR SERVO advisory lights are on. Backup pump should come on within ½ second. Make pedal inputs and note tail rotor authority. Slowly increase the collective and bring the helicopter to a 10- to 15-foot hover. Make a left or right pedal turn and return to the original heading. Direct the copilot to switch the tail rotor servo switch to the normal position. Note caution/advisory panel indications are normal. Backup pump off after 90 seconds (180 seconds dual accumulator).

REFERENCES:

TM 55-1520-237-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5645

TASK: Perform generator underfrequency protection disable/low rotor RPM check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.
2. Aircraft headed into wind.
3. Minimum hover altitude of 10 to 15 feet maintained.
4. Engine torques within 10 percent of each other maintained.
5. RPMR decreased to 90 percent; RPMR not allowed to go below 85 percent.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. Transfer flight controls to copilot and brief the maneuver. Briefing will include hover parameters, low rotor warning signal, control response, and recovery procedures.

2. Turn SAS 1 off. Using the power control levers, reduce RPM in 1 percent increments to 90 percent RPMR. Allow for a 3-second delay at each 1 percent RPMR. Note low rotor warning signal and caution light on at 95 percent RPMR. Note the generators remain on at 90 percent RPMR. Smoothly recover RPM to 100 percent.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5648

TASK: Perform compass turn rate vertical gyro checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.
2. Minimum hovering altitude of 10 to 15 feet maintained.
3. Hovering turn limitations observed.
4. Pilot's and copilot's instruments (NORM ALTR) checked.
5. Items checked in sequence.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While maintaining hover altitude, make hovering turns to the left and right, checking pilot's and copilot's compass cards for smooth operation and comparison with the magnetic compass. Also, check turn-rate indicators in NORM and ALTR. While at stabilized hover, make pitch and roll inputs, checking both pilot's and copilot's vertical gyros for proper operation in NORM and ALTR.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5649

TASK: Perform magnetic compass compensation.

CONDITION: In a UH-60A/L/EH-60 helicopter, a UH-60 SFTS, or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required or when it would not be required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-237-23-1 through -8
TM 55-1520-237-T

TASK NO: TF 5651

TASK: Perform takeoff/climb checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Copilot monitored stabilator indictor position.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform a normal takeoff. The stabilator should begin moving up between 30 and 50 KIAS. During the climb, check the pilot's and copilot's airspeed indicators, VSI, altimeter, horizontal situation indicators, and magnetic compass.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5657

TASK: Perform autorotation RPM checks.

CONDITION: In a UH-60A/L/EH-60 helicopter, a UH-60 SFTS, or orally.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.
2. Check altitude determined (minimum recover altitude is 500 feet AGL or above).
3. Airspeed checked at 80 KIAS ±3 KIAS.
4. Flight path and suitable landing area clear.
5. One altimeter set to 29.92 inches Hg.
6. RPMR at check altitude noted.
7. RPMR limitations not exceeded.
8. Power recovery (500 feet AGL or above).
9. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. Brief the copilot on the maneuver. The briefing will, at a minimum, include power recovery requirements, importance of aircraft trim, airspeed, and pilot responsibilities in the event of an emergency.

2. Set one altimeter to 29.92, climb to check altitude, and level off. After FAT has stabilized, record and climb an additional 1000 feet. Level off and stabilize airspeed at 80 KIAS. Check if torque is at or below single engine torque limits and, if it is, retard No. 2 ENG POWER CONT lever to IDLE. Check if No. 2 engine is stabilized at idle. Clear flight path and landing zone. Direct copilot to lower collective slowly to full-down position. Retard the No. 1 ENG POWER CONT lever to IDLE. Check airspeed, trim, fuel quantity, and note RPMR at check altitude. Advance No. 1 and 2 ENG POWER CONT levers to FLY detent and direct or make a power recovery.

REFERENCES:

TM 55-1520-237-10
TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5660

TASK: Perform in-flight controllability check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Level flight maintained at 100 KIAS ±3 KIAS.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: In level flight, check the position of the cyclic and antitorque pedals per TM 55-1520-237-MTF. Check that airspeed indicators are within 5 KIAS of each other. Note any abnormal vibrations. Establish a steady-state minimum power descent and verify that the stabilator position is between 3° to 7° up.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5663

TASK: Perform maximum power check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Predetermined pressure altitude climbed to.

3. Altitude maintained ±100 feet.

4. ANTI-ICE and HEATER switches OFF.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. Conduct a copilot briefing. The briefing may vary in content but, at a minimum, will include airspeed, aircraft limitations, altitude, and pilot duties in the event of an emergency.

2. Direct the copilot to fly the aircraft at assigned altitude and airspeed. Set one altimeter to 29.92, check ENG ANTI-ICE and HEATER switches OFF. Perform maximum power check on one engine at a time in accordance with TM 55-1520-237-MTF.

3. Evaluation may be conducted orally if the flight simulator or weather conditions are not available.

REFERENCES:

TM 1-1500-328-25
TM 55-1520-237-10
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

TASK NO: TF 5666

TASK: Perform stabilator check at 120 KIAS.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Level flight performed at 120 KIAS ±3 KIAS.

3. Fixed collective maintained.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: During level flight at 120 KIAS, with fixed collective, note stabilator position. Without releasing pedal trim, displace the trim ball one-ball width to the right. Note that the stabilator position pointer is about 3° down from the previously noted position. Release the pedal and allow it to return to the trimmed position; trim ball should return to within ½-ball width of center. Retrim the aircraft and repeat displacing the trim ball one-ball width to the left. Note stabilator position pointer is about 3° up from previously noted position. Release pedal; ball should return to ½-ball width of center. Retrim the aircraft and make 45° turns left and right with fixed collective. Note that the stabilator position pointer is about 1° down from the original position.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5669

TASK: Perform FPS/SAS check during flight.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Level flight performed at 120 KIAS ±3 KIAS.

3. Aircraft trimmed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Begin this maneuver by establishing straight and level flight at 120 KIAS, in trim, with fixed collective. Without releasing trim, introduce longitudinal cyclic stick movement enough to change the aircraft pitch attitude 5° up or down. Allow the cyclic to return to trimmed position. Note aircraft returns to the trimmed position with no more than one overshoot and that response is symmetrical. Repeat in the opposite direction. Repeat in the roll axis (left and right) using a 10° roll attitude change and then a 30° roll attitude change. Note the aircraft returns to the trimmed attitude with only a slight overshoot, response is symmetrical, and the trim ball returns to ½-ball width of center. Repeat with each SAS using one-half of the pitch and roll attitude values. Note the response is the same for both SAS 1 and SAS 2.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-23-1 through -8
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5672

TASK: Perform Vh check.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Vh obtained.

3. Level flight maintained.

4. Aircraft maintained within TM 55-1520-237-10 limits.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. Fly the aircraft and obtain Vh. Have the copilot take the controls and maintain altitude and airspeed. Brief the copilot. Briefing content may vary but will include torque, TGT limits, and pilot responsibilities in the event of an engine or stabilator failure.

2. Increase airspeed and power to maintain level flight until 100 percent torque or TGT limiting is obtained. At Vh, check to see that at least 2 inches of forward cyclic remain from the previously measured, forward stop position. Right pedal should not be over 1 inch forward of neutral; collective pitch control should not be against the upper stop. However, the condition where Vh and the upper stop are reached simultaneously is acceptable. Check that the STAB POS indicator pointer is in the 0° to 4° down range. Check for any abnormal vibrations.

REFERENCES:

TM 11-1520-237-23-1 through -3
TM 55-1520-237-10
TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5675

TASK: Perform communication and navigation equipment checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Installed navigation equipment checked.

3. Installed communication equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check operation of all communication and navigation equipment installed as indicated in the appropriate manuals.

REFERENCES:

TM 55-1520-237-10
TM 11-1520-237-23-1 through -3
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5677

TASK: Perform special/detailed procedures.

CONDITION: In a UH-60A/L/EH-60 helicopter with equipment installed or orally.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Additional publications used as required.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 11-1520-237-23-1 through -3
TM 55-1520-237-10
TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T

TASK NO: TF 5678

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a UH-60A/L/EH-60 helicopter or a UH-60 SFTS.

STANDARDS:

1. TM 55-1520-237-MTF with changes used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 11-1520-237-23-1 through -3
TM 55-1520-237-10
TM 55-1520-237-23-1 through -8
TM 55-1520-237-CL
TM 55-1520-237-MTF
TM 55-1520-237-T
TM 55-2840-248-23

CHAPTER 6

ATTACK HELICOPTER MAINTENANCE TEST PILOT

6-1. GENERAL. This chapter contains the attack helicopter maintenance test pilot tasks and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. If discrepancies are found between this chapter and the MTF manual, the MTF manual takes precedence. Submit DA Form 2028 as directed in the preface of this manual. AH-1 and main rotor blade identifications follow:

S – AH-1 MOD
P – AH-1 PROD
E – AH-1 ECAS
F – AH-1 Modernized
B-540 – Bell main rotor blade
K-747 – Kaman main rotor blade

6-2. AH-1 MP TASK LIST.

Task number	Task title
TF 6200	Perform prior-to-maintenance test flight checks.
TF 6202	Perform interior checks.
TF 6203	Perform before-starting engine checks.
TF 6205	Perform starting engine checks.
TF 6210	Perform engine run-up checks.
TF 6214	Perform baseline and normal engine health indicator test (HIT).
TF 6215	Perform before-takeoff check.
TF 6220	Perform takeoff to a hover.
TF 6221	Perform torquemeter check.
TF 6222	Perform yaw channel response.
TF 6223	Perform pedal authority check.
TF 6224	Perform sideward-hovering flight.
TF 6226	Perform forward-hovering flight.
TF 6230	Perform pylon mounts check – SCAS on.
TF 6235	Perform pylon mounts check – SCAS off.
TF 6242	Perform engine response check.
TF 6244	Perform low-RPM hover.
TF 6246	Perform manual throttle operations, emergency governor mode.
TF 6248	Perform power cylinder check, dual system check.
TF 6250	Perform power cylinder check, hydraulics No. 1 system check.
TF 6252	Perform power cylinder check, hydraulics No. 2 system check.
TF 6253	Perform collective servo authority check, No. 1 system check.
TF 6253.1	Perform collective servo authority check, No. 2 system check.
TF 6254	Perform takeoff and climb-out checks.
TF 6256	Perform control-rigging check – SCAS on.
TF 6260	Perform control-rigging check – SCAS off.

TF 6270 ..... Perform autorotation RPM check.
TF 6271 ..... Perform flight instruments check.
TF 6272 ..... Perform cruise and descent check.
TF 6273 ..... Perform acceleration check.
TF 6280 ..... Perform "G" loading check.
TF 6290 ..... Perform communication and navigation equipment checks.
TF 6292 ..... Perform engine-topping check.
TF 6295 ..... Perform after-landing and engine shutdown checks.
TF 6296 ..... Perform special/detailed procedures.

6-3. AH-1 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (AH-1)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	INTERIOR CHECKS	S
3	BEFORE-STARTING ENGINE CHECKS	S
4	STARTING ENGINE CHECKS	S
5	ENGINE RUN-UP CHECKS	S
6	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
7	BEFORE TAKEOFF CHECK	S
8	TAKEOFF TO A HOVER	S
9	TORQUEMETER CHECK	S
10	MAGNETIC COMPASS COMPENSATION	S
11	YAW CHANNEL RESPONSE	S
12	PEDAL AUTHORITY CHECK	S
13	SIDEWARD-HOVERING FLIGHT	S
14	FORWARD-HOVERING FLIGHT	S
15	PYLON MOUNTS CHECK SCAS ON	S
16	PYLON MOUNTS CHECK SCAS OFF	S
17	ENGINE RESPONSE CHECK	S
18	LOW-RPM HOVER	S
19	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	S
20	POWER CYLINDER CHECK, DUAL SYSTEM CHECK	S
21	POWER CYLINDER CHECK, HYDRAULICS #1 SYSTEM CHECK	S
22	POWER CYLINDER CHECK, HYDRAULICS #2 SYSTEM CHECK	S
23	COLLECTIVE SERVO AUTHORITY CHECK, #1 SYSTEM CHECK	S
24	COLLECTIVE SERVO AUTHORITY CHECK, #2 SYSTEM CHECK	S
25	TAKEOFF AND CLIMB-OUT CHECKS	S
26	CONTROL-RIGGING CHECK SCAS ON	S
27	CONTROL-RIGGING CHECK SCAS OFF	S
28	AUTOROTATION RPM CHECK	S
29	FLIGHT INSTRUMENTS CHECK	S
30	CRUISE AND DESCENT CHECK	S
31	ACCELERATION CHECK	S
32	"G" LOADING CHECK	S
33	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
34	ENGINE-TOPPING CHECK	S
35	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
36	SPECIAL PROCEDURES	S
37	ORAL EVALUATION	S
38	JMB	
39		
40		

SAMPLE

NOTE ITEMS 38 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-4-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE AH-1 MTF MANEUVERS GRADE SLIP

6-4. TASK CONTENT. Each task contains a task number and title, conditions, standards, description, and references as appropriate.

a. *Task Number and Title.* Each task is identified by a task number and title that correspond to the MP task lists in paragraphs 6-2 for the AH-1 and 6-6 for the AH-64.

b. *Condition.* The condition statement includes the resources that are available to the MP to perform the task, the circumstances—including environmental factors—in which it will be performed, and any applicable restrictions.

c. *Standards.* The standards describe those elements of performance that must be completed satisfactorily and in the proper sequence to achieve successful performance of the task. Standards may be objective (measurable) or subjective (judgmental).

d. *Description.* This paragraph provides, in narrative form, any additional information that may be needed to explain how the task should be performed to meet the standards.

e. *References.* Publications that must be used or are helpful in performing the task are listed.

6-5. AH-1 MP TASKS.

TASK NO: TF 6200

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: On an AH-1 helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-234/236-CL used.
2. Items checked in sequence.
3. Aircraft suitability for flight correctly determined.
4. Maneuvers, checks, and tasks required for the test flight determined.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-234/236-CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operation around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1520-234-10
TM 55-1520-234-CL
TM 55-1520-236-10
TM 55-1520-236-CL

TASK NO: TF 6202

TASK: Perform interior checks.

CONDITION: In an AH-1 helicopter or an AH-1 flight weapons simulator (FWS).

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6203

TASK: Perform before-starting engine checks.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6205

TASK: Perform starting engine checks.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6210

TASK: Perform engine run-up checks.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6214

TASK: Perform baseline and normal engine health indicator test (HIT).

CONDITION: In an AH-1 helicopter, FWS, or orally.

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in proper conditions and sequence.

3. Required readings recorded on HIT log.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Use HIT log to perform HIT check. Use computation sheet to perform baseline HIT.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6215

TASK: Perform before-takeoff check.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6220

TASK: Perform takeoff to a hover.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft cleared.
2. Gradual vertical ascent performed to a 3-foot hover ±1 foot.
3. Droop cam operation normal.
4. Apparent center of gravity normal.
5. Stability and vibration levels normal.
6. Cyclic, collective, and pedal control responses normal.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensuring that all control and instrument indications are normal, increase collective with a smooth, positive pressure. Apply antitorque pedals as needed to maintain heading and coordinate cyclic to achieve a vertical ascent. Note that apparent center of gravity is normal and that no excessive control displacement is required during the ascent. Adjust collective to maintain the desired altitude. Check that N2 speed remains constant within 40 RPM (AH-1S) or that N2 remains constant within 0.6 percent of previously set value (AH-1P, AH-1E, AH-1F). While hovering into the wind, ensure that cyclic is nearly centered and pedal position is normal.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6221

TASK: Perform torquemeter check.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Hover stabilized at 5 feet ±1 foot.
2. Aircraft headed into wind.
3. Appropriate altitude maintained.
4. Torque indication noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Note torque indication and compare with computed torque value. (Actual torque requirement should be determined by using actual FAT, PA indicated at setting of 29.92, and actual aircraft weight at the time of check.) Actual torque should be within ±3 percent (2 psi) of computed torque value. Analyze or resolve differences.

REFERENCES:

TM 55-1520-234-10
TM 55-1520-236-10

TASK NO: TF 6222

TASK: Perform yaw channel response.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Hover maintained at 3 feet ±1 foot.
2. Aircraft cleared.
3. Aircraft headed into wind.
4. Slight vertical ascent established.
5. Stability and control augmentation system (SCAS) tendency to maintain original heading noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With the aircraft faced into the prevailing wind and without moving pedals, increase collective slightly, noting that SCAS tends to maintain nearly original heading. If yaw channel SCAS function is questionable, disengage yaw channel of SCAS and repeat check for comparison.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6223

TASK: Perform pedal authority check.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft cleared.

2. Left and right turns of 90° to each side of wind direction, not to exceed a 90° rate of turn in 4 seconds performed.

3. Tail rotor response and rigging noted.

4. Flight instrument response normal.

5. Hover maintained 3 feet ±1 foot.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply pressure on the desired pedal to begin the turn. Use pressure and counterpressure on both pedals to maintain a constant rate of turn. Note that excessive pedal positions are not required during the maneuver. Make hovering turns left and right 90° to each side of wind direction. The turn and slip indicator and compasses should respond normally.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6224

TASK: Perform sideward-hovering flight.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft cleared.
2. Hover maintained 3 feet ±1 foot.
3. Aircraft headed into wind; flight path approximately perpendicular to wind direction maintained.
4. Left and right sideward flight performed.
5. Aircraft response noted.
6. Hover speed consistent within safe autorotational capabilities.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved. Then neutralize the cyclic. Aircraft should drift to a stop.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6226

TASK: Perform forward-hovering flight.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft cleared.

2. Aircraft headed into wind.

3. Forward-hovering flight performed.

4. Aircraft response noted.

5. Tail rotor altitude maintained during deceleration.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply a sufficient amount of forward cyclic to accelerate forward to effective translational lift. Note that excessive control inputs are not required and that aircraft response is normal. Apply aft cyclic to note sufficient authority. Return to normal hovering flight.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6230

TASK: Perform pylon mounts check – SCAS on.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. SCAS engaged.

3. A 5-foot hover ±1 foot maintained.

4. Pylon rock induced.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Move cyclic fore and aft as required (not to exceed 3 to 4 inches) to induce pylon rock; then stabilize cyclic. Note the number of oscillations required for rocking to subside. Note any abnormal engine responses.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6235

TASK: Perform pylon mounts check – SCAS off.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Aircraft headed into wind.

2. A 5-foot hover ±1 foot maintained.

3. SCAS disengaged.

4. Pylon rock induced.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Disengage all SCAS channel switches. Move cyclic fore and aft as required (not to exceed 3 to 4 inches) to induce pylon rock; then stabilize cyclic. Note the number of oscillations required for rocking to subside. No significant variation between SCAS-on and SCAS-off checks should be evident. Note any abnormal engine responses. Land aircraft; reengage SCAS.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6242

TASK: Perform engine response check.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft headed into wind.
2. Aircraft cleared left, right, and overhead.
3. Deicer and ECU turned off.
4. Altitude climb not to exceed 50 feet.
5. Torque and TGT maintained within limits.
6. Engine response noted.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Note N2 reading. From a stabilized hover, make a positive application of collective pitch as required to obtain a decrease in N2. Without further collective movement, note that the overspeed governor tends to increase N2 to original reading. Terminate maneuver with a smooth reduction of collective before excessive altitude is gained. Note that N2 does not exceed operating limits. Engine should respond smoothly and rapidly.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6244

TASK: Perform low-RPM hover.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft headed into wind.
2. Hover maintained at 3 feet ±1 foot.
3. With governor increase/decrease switch N2 RPM decreased to 6000 or 91 percent.
4. Hovering turn 45° left and right of initial heading performed.
5. Controllability noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Slowly decrease N2 RPM to 6000 (AH-1S) or 91 percent (AH-1P, AH-1E, AH-1F) with governor increase/decrease switch while maintaining a stabilized hover. Check for controllability and control positions. Check antitorque controllability by performing 45° hovering turns. Check for lateral vibrations. Increase linear actuator to 6400 RPM or 97 percent. Land aircraft; then increase linear actuator to operational RPM.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6246

TASK: Perform manual throttle operations, emergency governor mode.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Correct procedures used to change governor to emergency mode.
2. RPM maintained at 6400 ±100 (AH-1S).
3. RPM maintained at 97 percent ±2 percent (AH-1P, AH-1E, AH-1F).
4. Positive aircraft control maintained.
5. Engine performance noted throughout maneuver.
6. Correct procedures used to change governor to automatic mode.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While on the ground, reduce throttle to flight idle. Note N1 speed and switch governor to the emergency position. Stabilize N1 to minimize change in TGT. Confirm that N1 will decrease slightly below previously noted flight-idle speed with throttle. Smoothly advance throttle to 6400 RPM (AH-1S) or 97 percent (AH-1P, AH-1E, AH-1F); then increase collective, maintaining RPM with throttle to a stabilized hover. Maintain RPM, land aircraft; retard throttle to flight-idle position. When at idle, return governor switch to AUTO. Note that N1 is stabilized at flight idle and caution light is extinguished. Check operation of gunner's governor switch. Advance throttle to operating RPM.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6248

TASK: Perform power cylinder check, dual system check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Copilot safety briefing on emergency procedures completed.

2. Aircraft headed into wind.

3. A 10- to 15-foot altitude maintained.

4. Power cylinder check performed.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Increase hovering altitude to 10 to 15 feet; transfer control of the collective to copilot. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel. Note normal unrestricted operation of controls and then stabilize aircraft. Smoothly move cyclic laterally through 6 to 8 inches of full travel. Note smooth operation and no control restrictions. Stabilize aircraft.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6250

TASK: Perform power cylinder check, hydraulics No. 1 system check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Copilot safety briefing on emergency procedures completed.

2. Aircraft headed into wind.

3. A 10- to 15-foot hover maintained.

4. Power cylinder check performed.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Increase hovering altitude to 10 to 15 feet; transfer control of collective to copilot. Place HYD TEST switch to No. 1 SYS TEST position. Note illumination of MASTER CAUTION and HYD PRESSURE No. 2 caution segments and stabilize aircraft. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel. Note normal unrestricted operation of controls; then stabilize aircraft. Smoothly move cyclic laterally through 6 to 8 inches of full travel. Note normal operation and no control restrictions. Stabilize aircraft.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6252

TASK: Perform power cylinder check, hydraulics No. 2 system check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Copilot safety briefing on emergency procedures completed.

2. Aircraft headed into wind.

3. A 10- to 15-foot altitude maintained.

4. Power cylinder check performed.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Increase hovering altitude to 10 to 15 feet; transfer control of collective to copilot. Place HYD TEST switch to No. 2 SYS TEST position. Note illumination of MASTER CAUTION and HYD PRESSURE No. 1 caution segments and stabilize aircraft. Pedals will be stiff but should be manageable. Move the cyclic smoothly fore and aft through 6 to 8 inches of full travel. Note that controls are normal and unrestricted. Stabilize aircraft. Smoothly move cyclic laterally through 6 to 8 inches of full travel. Note that controls are normal and unrestricted; then stabilize aircraft. Transfer control of collective to pilot. Land aircraft (E, F) and engage SCAS.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6253

TASK: Perform collective servo authority check, No. 1 system check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Copilot safety briefing on emergency procedures completed.

2. Aircraft headed into wind.

3. Aircraft cleared left, right, and overhead.

4. Collective authority check performed.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Transfer controls of the aircraft to the copilot. From a stabilized 5-foot hover, place HYD TEST switch to No. 1 position. Note illumination of MASTER CAUTION and No. 2 HYD PRESSURE caution segment and stabilize aircraft. Copilot smoothly raises collective control until reaching a torque limit of 85 percent torque (48 psi) or control limiting, whichever is less. Note torque value attained. If less than 85 percent (48 psi), relax pressure on control, stabilize aircraft at a hover, and return HYD TEST switch to the BOTH position. Land aircraft and reengage SCAS. Determine cause of inadequate torque amount, if less than stated above, and correct malfunction prior to release for mission use.

REFERENCES:

TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6253.1

TASK: Perform collective servo authority check, No. 2 system check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Copilot safety briefing on emergency procedures completed.

2. Aircraft headed into wind.

3. Aircraft cleared left, right, and overhead.

4. Collective authority check performed.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Transfer controls of the aircraft to the copilot. From a stabilized 5-foot hover, place HYD TEST switch to No. 2 position. Note illumination of MASTER CAUTION and No. 2 HYD PRESSURE caution segments and stabilize aircraft. Copilot smoothly raises collective control until reaching 85 percent torque (48 psi) or control limiting, whichever is less. Note torque value attained. If less than 85 percent (48 psi), relax pressure on controls, stabilize aircraft at a hover, and return HYD TEST switch to the BOTH position. Land aircraft and reengage SCAS. Determine cause of inadequate torque amount, if less than stated above, and correct malfunction prior to release for mission use.

REFERENCES:

TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6254

TASK: Perform takeoff and climb-out checks.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Aircraft cleared.

2. Normal takeoff performed.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform normal takeoff and climb out to initial test altitude. Note proper aircraft response, vibration levels, vibration entry airspeeds, and instrument operations.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6256

TASK: Perform control-rigging check—SCAS on.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Minimum safe altitude maintained.
2. Airspeed of 100 KIAS ±5 KIAS maintained.
3. Torque maintained at 25 psi (AH-1S) or 45 percent (AH-1P, AH-1E, AH-1F).
4. Aircraft maintained in trim.
5. Cyclic and pedal positions noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain airspeed, torque, and trim. Note that the cyclic is nearly centered and pedals are neutral ±½ inch. Turn force trim on. Note force trim tends to hold aircraft attitude. Turn force trim off.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6260

TASK: Perform control-rigging check—SCAS off.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Minimum safe altitude maintained.
2. SCAS disengaged.
3. Airspeed maintained at 100 KIAS ±5 KIAS.
4. Torque maintained at 25 psi (AH-1S) or 45 percent (AH-1P, AH-1E, AH-1F).
5. Cyclic and pedal positions noted.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain airspeed, torque, and trim. Note control positions. Disengage all SCAS channel switches. Note control positions and compare with previous check. Note that the cyclic is nearly centered and pedals are neutral ±½ inch. Relax control pressures and note that aircraft tends to fly straight and level. SCAS-off stability should be normal. Reengage SCAS.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6270

TASK: Perform autorotation RPM check.

CONDITION: In an AH-1 helicopter or FWS; entry altitude must be sufficient to allow power recovery at or above 500 feet AGL.

STANDARDS:

1. Airspeed maintained at 80 KIAS ±5 KIAS.

2. Suitable landing area within gliding distance.

3. Correct autorotation-entry procedures used.

4. N1, trim, vibrations, RPM, and torque near zero noted.

5. Correct power-recovery procedures used.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain 80 KIAS; then smoothly lower collective to full-down position. Retard the throttle to flight-idle position. Ensure main rotor does not tend to overspeed. Note that N1 has stabilized at flight idle (68 to 72 percent), that aircraft is in trim, and that sufficient right pedal remains. Note any unusual vibrations and ensure that rotor is stabilized at the appropriate RPM. Perform power recovery by smoothly increasing throttle to full open (note needles joined); then increase collective to a power setting that will establish a definite climb.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6271

TASK: Perform flight instruments check.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. Flight instruments checked.

2. Assigned altitude maintained.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Vary airspeed and altitude as necessary to check performance of installed flight instruments.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6272

TASK: Perform cruise and descent check.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. KIAS of 80 maintained.
2. Assigned altitude maintained.
3. Power reduced to 10-psi descent (AH-1S) or 18 percent descent (AH-1P, AH-1E, AH-1F).
4. Vibration level noted.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish an 80-KIAS straight-and-level cruise, noting vibration intensity. Maintain 80 KIAS; then reduce power to 10-psi torque (AH-1S) or 18 percent torque (AH-1P, AH-1E, AH-1F). Note any change in vibration intensity. Reestablish 80-KIAS straight-and-level flight.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6273

TASK: Perform acceleration check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Entry airspeed 80 KIAS.

2. Minimum safe altitude maintained.

3. Airspeed increased noting vibrations each 10 KIAS.

4. Change in vibration level noted.

5. Airspeed increased to maximum obtainable level-flight airspeed or until vibration begins to intensify KIAS of 150 maximum.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Smoothly increase airspeed in 10-KIAS increments to maximum obtainable level-flight airspeed or until unacceptable vibration level is noted. Note any changes in vibration level and airspeed when vibration intensifies. Then, resume normal flight.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6280

TASK: Perform "G" loading check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. Entry airspeed 80 KIAS ±10 KIAS.

2. Dive angle maintained.

3. Moderate "G" loading achieved.

4. Constant torque maintained.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Fly straight and level. Adjust torque to maintain 80 KIAS. Execute a 20° to 30° dive; maintain entry torque and aircraft trim. Accelerate to approximately 130 KIAS; then perform moderate "G" pullout, maintaining torque and noting any excessive vibrations or pylon oscillation. Return to cruise flight.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6290

TASK: Perform communication and navigation equipment checks.

CONDITION: In an AH-1 helicopter or FWS.

STANDARD:

1. Altitude maintained as directed.

2. Airspeed maintained as required.

3. All installed avionics equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check position of all installed equipment as indicated in the appropriate manuals. Check all communication radios on at least two frequencies including guard frequency. Check navigation radios for correct needle indication to and from a tuned station. Check transponder with nearest ATC facility to include emergency squawk.

REFERENCES:

TM 11-1520-221-20
TM 11-1520-236-20
TM 55-1520-234-10
TM 55-1520-236-10
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6292

TASK: Perform engine-topping check.

CONDITION: In an AH-1 helicopter.

STANDARDS:

1. ECU and deice switches off and one altimeter set at 29.92.
2. Airspeed of 80 KIAS ±10 KIAS maintained.
3. Engine-topping check performed.
4. Topping data analyzed and recorded.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Climb at a normal rate until approximately 1500 feet below expected topping altitude. Smoothly increase collective to maximum available torque indicated or until N2 decreases to 6400 RPM/97 percent. Maintain 6400 RPM/97 percent N2 with collective and, while passing through the next 1000-foot increment pressure altitude, record FAT, torque, N1, TGT, and PA. Increase collective to decrease N2 to 6200 RPM/94 percent. Note that N1 has not changed, that sufficient pedal authority exists to maintain trim, and excessive or abnormal vibrations are not evident. Reset altimeter and resume normal flight.

> **NOTE:** Actual topping of the aircraft engine is not required to occur during training and evaluation. The intent is to demonstrate maneuver proficiency.

REFERENCES:

TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: TF 6295

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In an AH-1 helicopter or FWS.

STANDARDS:

1. TM 55-1520-236-MTF or TM 55-1520-244-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-234-23-1/-2
TM 55-1520-236-23-1 through -4
TM 55-1520-236-MTF
TM 55-1520-244-MTF

TASK NO: 6296

TASK: Perform special/detailed procedures.

CONDITION: In an AH-1 helicopter with equipment installed in accordance with Chapter 4, TM 55-1520-244-MTF and Chapter 4, TM 55-1520-236-MTF.

STANDARDS:

1. TM 55-1520-244-MTF and TM 55-1520-236-MTF with changes used.

2. Additional publications used as required.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-234-10
TM 55-1520-234-23
TM 55-1520-234-CL
TM 55-1520-236-10
TM 55-1520-236-23
TM 55-1520-236-CL
TM 55-1520-236-MTF
TM 55-1520-244-MTF
TM 55-2840-229-23

6-6. AH-64 MP TASK LIST.

Task number	Task title
TF 6600	Perform prior-to-maintenance test flight checks.
TF 6602	Perform interior check—pilot and copilot/gunner station.
TF 6604	Perform before-starting APU checks.
TF 6606	Perform starting APU checks.
TF 6608	Perform after-starting APU checks.
TF 6620	Perform starting engine checks.
TF 6622	Perform engine run-up checks.
TF 6630	Perform before-taxi checks.
TF 6632	Perform taxi checks.
TF 6634	Perform baseline and normal engine health indicator test (HIT).
TF 6636	Perform before-hover/takeoff checks.
TF 6640	Perform hover checks.
TF 6642	Perform hover maneuvering checks.
TF 6644	Perform DASE/HAS check.
TF 6646	Perform visionic systems check.
TF 6648	Perform Doppler drift check.
TF 6649	Perform magnetic compass compensation.
TF 6650	Perform initial takeoff check.
TF 6652	Perform cruise flight checks.
TF 6654	Perform autorotation RPM check.
TF 6656	Perform attitude-hold check.
TF 6657	Perform stabilator system check.
TF 6658	Perform maneuvering-flight checks.
TF 6660	Perform Vh check.
TF 6662	Perform engine performance check—minimum torque.
TF 6664	Determine TGT limiter setting/contingency power check.
TF 6666	Perform communication and navigation equipment checks.
TF 6668	Perform weapons systems check.
TF 6669	Perform special/detailed procedures.
TF 6670	Perform engine shutdown check.

6-7. AH-64 MTF MANEUVERS GRADE SLIP

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (AH-64)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	INTERIOR CHECK: PILOT AND COPILOT/GUNNER STATION	S
3	BEFORE-STARTING APU CHECKS	S
4	STARTING APU CHECKS	S
5	AFTER-STARTING APU CHECKS	S
6	STARTING ENGINE CHECKS	S
7	ENGINE RUN-UP CHECKS	S
8	BEFORE-TAXI CHECKS	S
9	TAXI CHECKS	S
10	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
11	BEFORE-HOVER/TAKEOFF CHECKS	S
12	HOVER CHECKS	S
13	HOVER MANEUVERING CHECKS	S
14	DASE/HAS CHECKS	S
15	VISIONIC SYSTEMS CHECK	S
16	DOPPLER DRIFT CHECK	S
17	MAGNETIC COMPASS / HSI COMPENSATION	S
18	INITIAL TAKEOFF CHECK	S
19	CRUISE FLIGHT CHECKS	S
20	AUTOROTATION RPM CHECK	S
21	ATTITUDE-HOLD CHECK	S
22	STABILATOR CHECK	S
23	MANEUVERING FLIGHT CHECKS	S
24	Vh CHECK	S
25	ENGINE PERFORMANCE CHECK-MINIMUM TORQUE	S
26	TGT LIMITER SETTING/CONTINGENCY POWER CHECK	S
27	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
28	WEAPONS SYSTEMS CHECK	S
29	SPECIAL PROCEDURES	S
30	ENGINE SHUTDOWN CHECK	S
31	ORAL EVALUATION	S
32	JMB.	
33		
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NOTE ITEMS 32 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-11-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE AH-64 MTF MANEUVERS GRADE SLIP

6-8. AH-64 MP TASKS.

TASK NO: 6600

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: On an AH-64 helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-238-CL used.

2. Items checked in sequence.

3. Aircraft suitability for flight correctly determined.

4. Maneuvers, checks, and tasks required of the test flight determined.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-238-CL. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operation around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
DA Pam 738-751
TM 1-1500-328-25
TM 55-1520-238-10
TM 55-1520-238-23
TM 55-1520-238-CL
TM 55-1520-238-MTF

TASK NO: TF 6602

TASK: Perform interior check—pilot and copilot/gunner station.

CONDITION: In an AH-64 helicopter or CMS, before flight.

STANDARDS:

1. TM 55-1520-238-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6604

TASK: Perform before-starting APU checks.

CONDITION: In an AH-64 helicopter or CMS, with preflight inspection and interior checks completed.

STANDARDS:

1. TM 55-1520-238-MTF used.

2. Items checked and performed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6606

TASK: Perform starting APU checks.

CONDITION: In an AH-64 helicopter or CMS, with before-starting APU check completed.

STANDARDS:

1. APU exhaust area cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6608

TASK: Perform after-starting APU checks.

CONDITION: In an AH-64 helicopter or CMS, with APU running.

STANDARDS:

1. Wing pylon and TADS areas cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6620

TASK: Perform starting engine checks.

CONDITION: In an AH-64 helicopter or CMS, with after-starting APU checks completed.

STANDARDS:

1. Aircraft area cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6622

TASK: Perform engine run-up checks.

CONDITION: In an AH-64 helicopter or CMS, with starting engine checks completed.

STANDARDS:

1. Aircraft area cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6630

TASK: Perform before-taxi checks.

CONDITION: In an AH-64 helicopter or CMS, with engine run-up checks completed.

STANDARDS:

1. Aircraft area cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined an corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6632

TASK: Perform taxi checks.

CONDITION: In an AH-64 helicopter or CMS, with before-taxi checks completed.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Verify that parking brake is released and tail wheel is unlocked. Initiate taxi. Check brake operation of both pilot and copilot/gunner. Note any tendency of the aircraft to perform uncommanded swerving due to brake or wheel malfunction. Check instruments and symbology to verify normal functions.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6634

TASK: Perform baseline and normal engine health indicator test (HIT).

CONDITION: In an AH-64 helicopter, CMS, or orally.

STANDARDS:

1. Aircraft area cleared.
2. Aircraft headed into wind.
3. TM 55-1520-238-MTF used.
4. Np, Nr, and torque correctly established as required.
5. Aircraft hours, FAT, PA, and indicated TGT recorded.
6. Items performed in sequence.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Position helicopter heading into the wind. Retard nontest engine power lever to idle. Ensure ENG INLET anti-ice switch is OFF. Ensure Np and Nr are at 100 percent. Increase collective to 60 percent torque and hold for a minimum of 30 seconds to allow TGT to stabilize. Record aircraft hours, FAT, PA, and indicated TGT. (Repeat the above procedures three times when establishing a baseline HIT.) Smoothly advance nontest engine power lever to fly; observe that torque matching takes effect. Allow torque to stabilize. Retard the other engine power lever to idle. Adjust torque as required to 60 percent and record indications stated above for the second engine. Decrease collective and advance power lever to fly.

> **NOTE:** Ensure ENG INLET advisory light is extinguished prior to taking any TGT readings for record.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6636

TASK: Perform before-hover/takeoff checks.

CONDITION: In an AH-64 helicopter or CMS, with HIT check completed.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6640

TASK: Perform hover checks.

CONDITION: In an AH-64 helicopter or CMS, with before-hover checks completed.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Take off to a stabilized 5-foot hover. Verify normal controllability, stability, and center of gravity. Observe that pylons articulate properly for existing configuration. Note vibration levels and stabilator effect on vibration through full range of stabilator travel. Check instruments and symbology for proper functioning; verify PPC data correlation. Minimize acceleration cue and velocity vector motion to the extent possible. Update Doppler and verify that readouts indicate "0" after update.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6642

TASK: Perform hover maneuvering checks.

CONDITIONS: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Forward and sideward hover flight performed at 5- to 10-foot wheel height.

5. Rearward hover flight performed 10- to 15-foot wheel height.

6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform forward, lateral, and rearward hovering flight by applying cyclic in the desired direction of flight, noting that no excessive inputs are required and that the desired aircraft response is achieved. Then neutralize the cyclic. The aircraft should drift to a stop. Verify aircraft controllability, response, instrument, and symbology functioning. Perform 90° left and right pedal turns. Verify aircraft controllability, response, instrument, and symbology functioning.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6644

TASK: Perform DASE/HAS check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With the aircraft at a hover, note aircraft stability for reference. Adjust trim feel as required. Engage HAS switch and relax control pressures; note any tendency of aircraft attitude to change from the trimmed condition. Without retrimming, perform smooth 90° pedal turns.Relax control pressures and verify HAS holds newly selected heading. Initiate a climb and ensure the aircraft maintains the selected heading within ±5°. Return to normal hovering flight. Momentarily move the trim release switch down, then ON. Note that the HAS switch disengages.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: 6646

TASK: Perform visionic systems check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Slew TADS to a target at a distance of 500 meters or more. Select narrow field of view in either DTV or FLIR and minimize turret drift. Do not observe display during the remainder of the check or attempt to recenter the cross hairs. Perform 90° left and right pedal turns pivoting about the TADS. The TADS inertial stabilization system should maintain the selected target within the narrow field of view at the 90° point without operator assistance.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6648

TASK: Perform Doppler drift check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Select bob-up mode. Minimize velocity vector and acceleration cue to the extent possible. Hover aircraft for one minute. Note amount of Doppler drift from original position.

> **NOTE:** Rates as high as 21 feet per minute may occur with a properly functioning Doppler system.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6649

TASK: Perform magnetic compass/HSI compensation.

CONDITION: In an AH-64 helicopter or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-238-23

TASK NO: TF 6650

TASK: Perform initial takeoff check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS.

1. Aircraft cleared for takeoff.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform a normal takeoff and climb out to initial test altitude. Note that stabilator automatic programming and HAS disengage normally. Check control positioning and aircraft response. Note proper instrument and symbology indications. Note vibration levels and entry airspeed if encountered. Note sensor operation. Observe engine torque matching is within 10 percent.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6652

TASK: Perform cruise flight checks.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.
2. Airspeed maintained at 110 KIAS.
3. Selected altitude maintained ±200 feet.
4. TM 55-1520-238-MTF used.
5. Items performed in sequence.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish a straight-and-level flight at 110 KIAS; note any unusual vibrations, noises, or instrument indications and sensor operations. Perform instrument correlation check by comparing instruments between crew stations. Monitor fuel consumption.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6654

TASK: Perform autorotation RPM check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.
2. Airspeed maintained at 80 KIAS ±5 KIAS.
3. Emergency landing area within gliding distance.
4. TM 55-1520-238-MTF used.
5. Predetermine autorotational RPM for ambient temperature and gross weight.
6. Items performed in sequence.
7. Nr noted record altitude.
8. Recovery to powered flight completed before descending below 50 feet AGL.
9. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. Set altimeter to 29.92 inches. Climb to a selected record altitude from which a full power recovery can be completed before descending below 500 feet AGL; record pressure altitude, free-air temperature, and fuel quantity. Predetermine autorotational RPM required. Climb to a minimum of 1000 feet above record altitude and establish level flight at 80 KIAS. Ensure that the selected emergency landing area is within gliding distance.

2. Reduce collective to less than 54 percent dual-engine torque. Being careful not to exceed 110 percent single-engine torque, retard either engine power lever to idle and verify that engine remains operational. Reduce collective to the full down stop; monitor Nr to ensure that it does not exceed limitations. Stabilize rotor RPM within allowable limits and retard the other engine power lever to idle, observing rotor RPM for excessive decay. Verify that second engine remains operational at idle. Attain a stabilized 80 KIAS autorotation before reaching record altitude. Note any abnormal vibrations and verify that aircraft controllability remains normal. At record altitude, record Nr. Initiate a power recovery by advancing both power levers to fly. Ensure Np is 100 percent and torque matching is in effect before increasing collective.

3. Before descending below 500 feet AGL, complete power recovery by a smooth application of collective. Resume normal cruise flight.

CAUTION

Excessive rate of collective application from low torque conditions may cause rotor RPM decay.

NOTE: Excessive rotor RPM decay during a normal power recovery may indicate an inoperable or maladjusted collective potentiometer.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6656

TASK: Perform attitude-hold check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft cleared.
2. Airspeed maintained at 110 KIAS.
3. Selected altitude maintained ±200 feet.
4. TM 55-1520-238-MTF used.
5. Items performed in sequence.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish straight-and-level flight at 110 KIAS. Note true airspeed correlation and verify that trim feel and all ASE switches are engaged. Engage attitude hover-hold switch, relax control pressures, and verify that aircraft attitude remains approximately the same. Perform 15° bank angle turns left and right and observe that sideslip does not exceed ½ trim ball displacement. Return to level flight. Actuate cyclic ASE release switch. Verify that all ASE switches unlatch and aircraft becomes less stable but remains controllable. Reengage ASE switches as required. Resume normal cruise flight.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6657

TASK: Perform stabilator system check.

CONDITIONS: In an AH-64 helicopter or CMS.

STANDARDS:

1. Maneuver area cleared.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish straight-and-level flight at 110 KIAS; note true airspeed (KIAS). NOE/APPR switch engage. Reduce collective pitch and coordinate cyclic as necessary to effect a gradual reduction of airspeed at selected altitude. Slow to less than 80 KIAS. Verify stabilator repositions to 25° trailing edge down and true airspeed of stabilator repositioning. Increase collective and apply cyclic to initiate a gradual level flight acceleration above 80 KIAS.

NOTE: True airspeed that stabilator initiates automatic programming. Return to 110 KIAS in level flight. Press stabilator reset button. Verify NOE/APPR switch returns to OFF.

NOTE: An excessive nose-low attitude may be experienced with abrupt torque and cyclic application during acceleration. Avoid excessive pitch angles throughout the maneuver.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6658

TASK: Perform maneuvering-flight checks.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft maneuver area cleared.

2. Airspeed maintained at 110 KIAS.

3. TM 55-1520-238-MTF used.

4. Items performed in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish straight-and-level flight at 110 KIAS; note vibration levels and control positions. Reduce collective to 20 percent torque, initiate a descent, and note any rotor instability, vibrations, or abnormal control positioning. Maintain 110 KIAS, initiate a climb by increasing collective to attain maximum continuous torque available. Note any rotor instability or unusual control positioning. Return to normal cruise flight. Smoothly perform 60° bank angle turns left and right, at 110 KIAS. Note any rotor instability, vibrations, or unusual control positioning. Resume normal cruise flight.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6660

TASK: Perform Vh check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft maneuver area cleared.

2. Selected altitude maintained ±200 feet.

3. TM 55-1520-238-MTF used.

4. Items performed in sequence.

5. Malfunctions or discrepancies or correctly determined corrective actions/troubleshooting procedures applied.

DESCRIPTION: While maintaining altitude and a level-flight attitude, smoothly increase collective until a maximum torque, Ng, TGT, or airspeed limit is reached. Note any abnormal vibrations or control responses. Verify that collective does not reach full-up stop before an allowable limit of engine performance is reached. Resume normal cruise flight.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6662

TASK: Perform engine performance check, minimum torque.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft maneuver area cleared.
2. Minimum torque and test altitude predetermined.
3. Test altitude maintained ±200 feet.
4. Airspeed varied to maintain altitude.
5. Anti-ice switches off.
6. TM 55-1520-238-MTF used.
7. Engine performance determined acceptable or not.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Set altimeter to 29.92. From an established 110 KIAS cruise at the predetermined test altitude, initiate the torque check by increasing dual-engine torque to 80 percent. Airspeed must be increased to maintain test altitude. Identify the nontest engine-power lever and retard as necessary to establish a minimum of 10 percent torque split between engines but not less than 60 percent torque on the nontest engine. Slowly increase collective pitch to reach minimum torque on the test engine. Maintain minimum torque for 10 seconds on the test engine; then record Ng speed, torque, FAT, pressure altitude, and engine oil pressure. Reduce collective and ensure rotor RPM is 100 percent. Advance power lever of nontest engine to FLY. Repeat if necessary for other engine. Compare PA, FAT, and torque produced at maximum power and compare to the minimum torque required for the FAT and pressure altitude. Determine if engine performance is satisfactory.

NOTE: Do not exceed Ng limits or an Nr/Np droop of 2 percent during the check.

REFERENCES:

TM 55-1520-238-23 series
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6664

TASK: Determine TGT limiter setting/contingency power check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Aircraft maneuver area cleared.
2. Altitude predetermined that will allow check completion without exceeding torque limits.
3. Test altitude maintained ±200 feet.
4. Airspeed varied to maintain altitude.
5. Engine anti-ice used, if necessary, to reach TGT limiter setting.
6. TM 55-1520-238-MTF used.
7. TGT limiter setting correctly determined and contingency power enabled on test engine verified.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. From an established 110 KIAS cruise at the predetermined test altitude, initiate the TGT limiter check by increasing engine torque to 80 percent; allow airspeed to increase in order to maintain test altitude. Identify the nontest engine-power lever and retard as necessary to establish a minimum of a 10 percent torque split between engines but not less than 60 percent torque on the nontest engine. If TGT limiter is not reached, increase collective until TGT limiter is reached without exceeding Ng or single-engine torque limits. Do not allow Nr to drop more than 4 percent. Allow 10 seconds for indications to stabilize at the limiter, then record TGT reading and note torque value of the test engine.

2. Reduce collective pitch until the combined torque of both engines is less than the torque noted on the test engine while at the limiter. Retard power lever of nontest engine to idle in order to enable contingency on the test engine. Ensure engine remains stable at idle. Increase collective in small increments until 10° above the limiter TGT is noted on the test engine. Do not exceed any limitations. Reduce collective pitch and advance power lever of nontest engine to FLY.

CAUTION

Monitor Nr throughout maneuver, particularly when collective is being increased or a power lever is being retarded. A 2 percent drop in Nr is sufficient to determine when at limiter. Never allow Nr to drop more than 4 percent during the maneuver.

NOTE: Safe altitude must be maintained to allow for sufficient time for reaction if the test engine fails.

REFERENCES:

TM 55-1520-238-23
TM 55-1520-238-MTF
TM 55-1520-238-T
TM 55-2840-248-23

TASK NO: TF 6666

TASK: Perform communication and navigation equipment checks.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. All installed systems for proper operation checked.

2. TM 55-1520-238-MTF used.

3. Items performed in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. ADF radio check: Verify proper lock-on to selected station, steady needle response, and proper tracking/station passage indications.

2. Doppler system check.

3. Transponder check: Verify proper functioning with ATC or tactical radar site.

4. Communication radio check: Check as required and verify acceptable extended transmission and reception ranges, if possible.

REFERENCES:

TM 11-1500-238-23
TM 55-1520-238-10
TM 55-1520-238-23
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6668

TASK: Perform weapons systems check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. Weapons systems properly safe and cleared.

2. Entry airspeed less than 100 KTAS.

3. TM 55-1520-238-MTF used.

4. Items performed in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish an airspeed of less than 100 KTAS as indicated by symbology displayed. Position the MASTER ARM and CPG ARM switches to SAFE; place the weapons select switches to the NORMAL/ON position, as appropriate. Select G with the weapons action switch (WAS-Gun). Verify normal gun articulation without abnormal vibrations. Select R with the weapons action switch (WAS-Rockets); verify normal pylon articulation without abnormal vibrations and that solid rocket cursor is displayed. Increase airspeed to above 100 KTAS. Verify that pylons articulate to flight stow and do not respond to head movement and that open rocket cursor is displayed. Position rocket select switch to GND STOW and verify that pylons remain in flight stow. Deselect rockets with weapons action switch, reduce airspeed below 100 KTAS, and verify that pylons articulate to ground stow. Reposition weapons select switches and MASTER ARM switches, as required. Resume normal cruise flight.

REFERENCES:

TM 9-1090-208 series
TM 9-1230-476 series
TM 9-1270-476 series
TM 11-5895-1184-23
TM 55-1520-238-10
TM 55-1520-238-23
TM 55-1520-238-MTF
TM 55-1520-238-T

TASK NO: TF 6669

TASK: Perform special/detailed procedures.

CONDITION: In an AH-64 helicopter with equipment installed.

STANDARDS:

1. TM 55-1520-238-MTF with changes used.
2. Additional publications used as required.
3. Oral call-out and confirmation method used.
4. Items checked in sequence.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional/special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 55-1500-328-25
TM 55-1520-238-10

TASK NO: TF 6670

TASK: Perform engine shutdown check.

CONDITION: In an AH-64 helicopter or CMS.

STANDARDS:

1. TM 55-1520-238-MTF used.

2. Items performed in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-238-23
TM 55-1520-238-MTF
TM 55-1520-238-T

CHAPTER 7

CARGO HELICOPTER MAINTENANCE TEST PILOT TASKS

7-1. GENERAL. This chapter contains the cargo helicopter maintenance test pilot tasks and their conditions, standards, and descriptions. Tasks will be performed for both training and evaluation. If discrepancies are found between this chapter and the appropriate MTF manual, the MTF manual takes precedence. Submit DA Form 2028 as directed in the preface of this manual.

7-2. CH-47 MP TASK LIST.

Task number	Task title
TF 7200	Perform prior-to-maintenance test flight checks.
TF 7202	Perform before-starting engine checks.
TF 7203	Perform longitudinal cyclic trim (LCT) manual operation check.
TF 7205	Perform starting engine checks.
TF 7210	Perform engine run-up checks.
TF 7214	Perform baseline and normal engine health indicator test (HIT).
TF 7215	Perform before-takeoff checks.
TF 7220	Perform lift-off check.
TF 7224	Perform engagement error check.
TF 7226	Perform SAS-function check (C model).
TF 7227	Perform AFCS-function check (D model).
TF 7230	Perform pitch stability augmentation system (PSAS) check (C model only).
TF 7232	Perform control position check.
TF 7234	Perform torque differential check.
TF 7236	Perform droop eliminator check.
TF 7237	Perform speed sweep checks.
TF 7240	Perform LCT lift-off check.
TF 7244	Perform PSAS evaluation (C model).
TF 7246	Perform SAS evaluation (C model).
TF 7247	Perform AFCS evaluation (D model).
TF 7250	Perform self-tuned vibration absorber (STVA) evaluation.
TF 7252	Perform rotor RPM droop check and thrust rod slippage check (D model).
TF 7260	Perform TEAC.
TF 7270	Perform autorotation RPM check.
TF 7290	Perform navigation and communication equipment checks.
TF 7295	Perform after-landing checks.
TF 7298	Perform special/detailed procedures.
TF 7299	Perform engine shutdown checks.

7-3. CH-47 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (CH-47)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	LONGITUDINAL CYCLIC TRIM (LCT) MANUAL OPERATION CHECK	S
4	STARTING ENGINE CHECKS	S
5	ENGINE RUN-UP CHECKS	S
6	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	S
7	BEFORE-TAKEOFF CHECK	S
8	LIFT-OFF CHECK	S
9	ENGAGEMENT ERROR CHECK	S
10	SAS-FUNCTION CHECK (C MODEL)	S
11	AFCS-FUNCTION CHECK (D MODEL)	S
12	PITCH STABILITY AUGMENTATION SYSTEM CHECK (C MODEL)	S
13	CONTROL POSITION CHECK	S
14	TORQUE DIFFERENTIAL CHECK	S
15	DROOP ELIMINATOR CHECK	S
16	SPEED SWEEP CHECKS	S
17	LCT LIFT-OFF CHECK	S
18	PSAS EVALUATION (C MODEL)	S
19	SAS EVALUATION (C MODEL)	S
20	AFCS EVALUATION (D MODEL)	S
21	SELF-TUNED VIBRATION ABSORBER (STVA) EVALUATION	S
22	ROTOR RPM DROOP & THRUST ROD SLIPPAGE CHECK (D MODEL)	S
23	TEAC	S
24	AUTOROTATION RPM CHECK	S
25	NAVIGATION AND COMMUNICATION EQUIPMENT CHECKS	S
26	AFTER-LANDING CHECKS	S
27	SPECIAL PROCEDURES	S
28	ENGINE SHUTDOWN CHECKS	S
29	ORAL EVALUATION	S
30	JMB	
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SAMPLE

NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-5-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE CH-47 MTF MANEUVERS GRADE SLIP

7-4. TASK CONTENT. Each task contains a task number and title, conditions, standards, description, and references as appropriate.

a. *Task Number and Title.* Each task is identified by a task number and title that correspond to the MP task lists in paragraphs 7-2 for the CH-47 and 7-6 for the CH-54.

b. *Conditions.* The condition statement includes the resources that are available to the MP to perform the task, the circumstances – including environmental factors – in which it will be performed, and any applicable restrictions.

c. *Standards.* The standards describe those elements of performance that must be completed satisfactorily and in the proper sequence to achieve successful performance of the task. Standards may be objective (measurable) or subjective (judgemental).

d. *Description.* This paragraph provides, in narrative form, any additional information that may be needed to explain how the task should be performed to meet the standards.

e. *References.* Publications that must be used or are helpful in performing the task are listed.

7-5. CH-47 MP TASKS.

TASK NO: TF 7200

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In a CH-47 helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Items checked in sequence.

3. Aircraft suitability for flight correctly determined.

4. Maneuvers, checks, and tasks required for the test flight determined.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-240-MTF or TM 55-1520-241-MTF. Determine maneuvers or checks necessary for a maintenance test flight. Use additional publications and references as necessary. Brief crew members and any supporting ground crew concerning operations around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1520-227-10-2
TM 55-1520-240-10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7202

TASK: Perform before-starting engine checks.

CONDITION: In a CH-47 helicopter, or CH-47 flight simulator before starting engine.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7203

TASK: Perform longitudinal cyclic trim (LCT) manual operation check.

CONDITION: In a CH-47 helicopter, or CH-47 flight simulator on the ground, during starting engine checks.

STANDARDS:

1. LCT manual operation check performed.

2. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Place speed trim switch to manual. Check for proper equipment installation by slightly extending and then retracting the LCT actuators. Note corresponding indicator movement. Check actuators by fully extending them, observing for full displacement of the indicator. Retract LCT actuators to midrange of indicator (C model). Place the speed trim switch to AUTO. Note that the indicator returns to the fully retracted position (C model) or the ground position (D model).

REFERENCES:

TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7205

TASK: Perform starting engine checks.

CONDITION: In a CH-47 helicopter, or CH-47 flight simulator after cockpit check.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7210

TASK: Perform engine run-up checks.

CONDITION: In a CH-47 helicopter, or CH-47 flight simulator after engine starts.

STANDARDS:

1. TM 55-1520-240-MTF or 55-1520-241-MTF used.

2. Items checked in sequence.

3. Malfunctions or dicrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7214

TASK: Perform baseline and normal engine health indicator test (HIT).

CONDITION: In a CH-47 helicopter, or CH-47 flight simulator before takeoff checks are completed, or orally.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Use HIT log to perform HIT check. Use computation sheet to perform baseline HIT.

REFERENCES:

TM 55-1520-240-MTF
TM 55-1520-241-MTF
TM 55-2840-254-23-1 through -4

TASK NO: TF 7215

TASK: Perform before-takeoff checks.

CONDITION: In a CH-47 helicopter, or CH-47 flight simulator after run-up checks are completed.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7220

TASK: Perform lift-off check.

CONDITION: In a CH-47 helicopter, with before-takeoff check completed.

STANDARDS:

1. Aircraft cleared.
2. Before-takeoff checks (SAS OFF - C) (AFCS - BOTH, D) completed.
3. Brakes set.
4. Forward gear lifted 1 to 2 feet off the ground.
5. Brakes hold helicopter in position.
6. Control response in all axes checked.
7. SAS hardover/balance (C model) checked.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Apply parking brakes and 2-inch aft cyclic with SAS OFF (C) (AFCS - BOTH, D). Slowly increase thrust and lift forward landing gear off the ground. Ensure that control and brakes function properly. Raise attitude to about 5° to 8° above horizon, while constantly confirming proper operation of flight controls and brakes.

NOTE: If at any time conditions do not appear to be normal, land aircraft and investigate.

With forward landing gear off the ground (1 to 2 feet), check flight control response in all axes by putting a slight input into pitch fore and aft; roll left and right; yaw left and right; and thrust up and down to confirm proper control operation. If controls check out satisfactorily place the aircraft back on the ground lightly and engage the SAS (C). Check for hardovers and balance errors in both systems. If no errors exist, leave engaged.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7224

TASK: Perform engagement error check.

CONDITION: In a CH-47 helicopter, with lift-off checks completed.

STANDARDS:

1. Aircraft cleared.

2. A 15- to 20-foot hover into the wind stabilized.

3. SAS/AFCS engagement error checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensuring that all control and instrument indications are normal, stabilize aircraft at a hover into the wind. For the C model, check engagement error by moving the EMER SAS REL switch to RELEASE and back to ENGAGE. Move the SAS selector switch to BOTH ON; check for engagement error. Then repeat engagement error check in No. 2 ON and No. 1 ON. For the D model, check engagement error by moving the AFCS selector to No. 1, then OFF, and back to No. 1. Check No. 2 by moving AFCS selector to No. 2, then OFF, and back to No. 2. Throughout the engagement error check, ensure that the aircraft attitude is kept stable.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7226

TASK: Perform SAS-function check (C model).

CONDITION: In a CH-47C helicopter, at a stabilized hover, with engagement error check completed.

STANDARDS:

1. Aircraft stabilized at a 15- to 20-foot hover.

2. SAS function check performed.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With SAS selector switch No. 1 SAS ON, check SAS response in the pitch, roll, and yaw axes. Check for the same condition in all three axes with No. 2 SAS ON. Check vertical gyro (VG) inputs into the roll channel by rolling into a 5° to 7° bank without depressing the control centering button. Allow the helicopter to return to the trimmed position. The helicopter should return to within 1° of the level trimmed position within five seconds with minimal overshoot. Repeat for the opposite direction.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-241-MTF

TASK NO: TF 7227

TASK: Perform AFCS-function check (D model).

CONDITION: In a CH-47D helicopter, at a stabilized hover, after engagement error check.

STANDARDS:

1. Aircraft stabilized at a 15- to 20-foot hover.

2. AFCS function check performed.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With AFCS selector switch BOTH ON, check AFCS response in pitch, pitch vernier trim (fore and aft), roll, and roll vernier trim (left and right). Check yaw with swivels locked and swivels unlocked. Also, check heading/bank angle hold in left and right sideward flight. Repeat sequence for No. 1 and No. 2 AFCS. Check radar altimeter hold.

REFERENCES:

TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF

TASK NO: TF 7230

TASK: Perform pitch stability augmentation system (PSAS) check (C model).

CONDITION: In a CH-47C helicopter, at a stabilized hover, with SAS function check completed.

STANDARDS:

1. Aircraft stabilized at a 15- to 20-foot hover.

2. PSAS function check performed.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With PSAS selector switch in NORMAL SYNC position, check pitch axis with a 5° displacement nose up. Hold the displacement for smooth acceleration. Aircraft should return to entry attitude after each displacement. Repeat procedure using 5° nose down; check return to entry attitude.

REFERENCES

TM 55-1520-227-23-1 through -5
TM 55-1520-241-MTF

TASK NO: TF 7232

TASK: Perform control position check.

CONDITION: In a CH-47 helicopter, at a stabilized hover, with engagement error check completed.

STANDARDS:

1. Crosswind hover stabilized at 10 to 15 feet.
2. Longitudinal cyclic position noted.
3. Hover into the wind.
4. Lateral cyclic and pedal positions noted.
5. Trim wheel operation (C model) checked.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While hovering crosswind, measure longitudinal position of cyclic from position indicator. (If the stick position indicator was determined to be accurate during control-travel checks, use it for all longitudinal cyclic measurements.) Turn aircraft into the wind and measure lateral cyclic position and the directional pedal position. In the CH-47C, rotate trim wheel full forward, allowing the cyclic to move forward without changing the aircraft altitude. Note longitudinal cyclic position indicator movement. Repeat for aft.

> **NOTE:** After work has been done to the flight control system (D model), the dash actuator should be set to its nominal setting (36.0 inches) and electrically disconnected. A crosswind hover should be accomplished.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7234

TASK: Perform torque differential check.

CONDITION: In a CH-47 helicopter, on the ground.

STANDARDS:

1. Aircraft maintenance at normal operating RRPM.
2. Constant thrust position maintained.
3. N1 and torque for each engine recorded.
4. Information evaluated.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With the aircraft on the ground, move No. 2 engine ECL to ground and beep No. 1 engine to operating RRPM. Increase thrust to a point where the aircraft is light on the gear (minimum 60 percent torque) while maintaining RRPM with normal engine trim. After N1 has stabilized, record N1 and torque for No. 1 engine. Maintain constant thrust position and decrease normal engine trim to full decrease. Move No. 2 engine ECL from ground to flight. After No. 2 engine stabilizes, move No. 1 engine ECL to ground. Beep No. 2 engine to operating RRPM and record N1 and torque. Recover normal operation by beeping No. 2 engine to full decrease and returning the thrust to the ground detent. Move No. 1 engine ECL to flight and beep engines to normal operating RRPM with matched torque. Evaluate information gathered.

NOTE: Use only the No. 1 and No. 2 normal engine trim switch to make all RRPM changes.

REFERENCES:

TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7236

TASK: Perform droop eliminator check.

CONDITION: In a CH-47 helicopter, on the ground.

STANDARDS:

1. Aircraft maintained at normal operating RRPM.

2. Thrust ground detent.

3. Normal operating RRPM with SAS/AFCS ON established.

4. Lift-off to a stabilized 10-foot hover.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish normal operating RRPM with matched torque, SAS/AFCS ON, and thrust in the ground detent. Smoothly increase thrust to hover power setting and bring the aircraft to a stabilized hover. Note changes in RRPM and torque. Check RRPM change and stabilized torque splits.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-13-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7237

TASK: Perform speed sweep checks.

CONDITION: In a CH-47 helicopter, in flight, after before-takeoff checks.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Takeoff and applicable airspeeds maintained.

3. Applicable indications recorded.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Stabilize airspeed at 60 KIAS. Compare pilot and copilot airspeed indicators, measure and record longitudinal and lateral cyclic, and directional pedal position. Increase airspeed to 80 KIAS. Record longitudinal cyclic position. Increase airspeed to 100 KIAS. Record longitudinal cyclic position. Increase airspeed to 120 KIAS. Record longitudinal cyclic position; check jettisonable doors. Increase airspeed to 140 KIAS. Measure and record longitudinal and lateral cyclic position and directional pedal position. Compare pilot and copilot airspeed indicators. Increase airspeed to 150 KIAS. Record longitudinal cyclic position and coordinated turn in BOTH SAS/AFCS. Check for LCT fully extended.

REFERENCES:

TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7240

TASK: Perform LCT lift-off retraction check.

CONDITION: In a CH-47 helicopter, in flight.

STANDARDS:

1. Take-off checks completed.

2. Takeoff to applicable airspeed per TM 55-1520-240-MTF or TM 55-1520-241-MTF.

3. Required airspeed maintained.

4. Applicable indications recorded.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Stabilize airspeed at 50 KIAS to check the fully retracted rigging of the LCT indicators. Increase airspeed to 70 KIAS while noting LCT indicator lift-off within limits. Record PA and LCT lift-off airspeed. Compare lift-off speed and pressure altitude with the appropriate chart. At an airspeed of 150 KIAS, during speed sweep, observe both cyclic trim indicators have reached the leading edge of the EXT range. Decrease airspeed below EXT envelope and check both FWD and AFT retract airspeed. Record PA and LCT retract speeds. Compare retract speed and pressure altitude with appropriate chart.

REFERENCES

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7244

TASK: Perform PSAS evaluation (C model).

CONDITION: In a CH-47C helicopter, at applicable airspeed, after hover PSAS check.

STANDARDS:

1. Applicable airspeed maintained.

2. PSAS in AUTO SYNC checked.

3. PSAS in NORM SYNC checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At 100 KIAS, place PSAS switch to AUTO SYNC position and trim the helicopter. Without depressing the centering release switch, accelerate to 110 KIAS and stabilize. Depress the centering release switch. No transient change in helicopter attitude should occur. Repeat procedure by decelerating to 100 KIAS. Accelerate to 120 KIAS and switch PSAS to NORM SYNC. Raise the nose of the helicopter 5° without trimming and hold until the airspeed has slowed by 5 KIAS. Allow the control centering to return the aircraft to 120 KIAS and within 1° of entry attitude within 10 seconds. Repeat procedure for nose down. Turn PSAS off.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-241-MTF

TASK NO: TF 7246

TASK: Perform SAS evaluation (C model).

CONDITION: In a CH-47C helicopter, in flight.

STANDARDS:

1. Airspeed maintained below 120 KIAS.
2. Aircraft cleared.
3. SAS in No. 1 and No. 2 systems checked.
4. Sideslip inputs checked.
5. Roll return checked.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

CAUTION

Do not allow the aircraft to exceed the single SAS airspeed limit.

DESCRIPTION: With airspeed below 120 KIAS, check SAS in No. 1 and No. 2 systems for stability and balance in the pitch, roll, and yaw axes. Check sideslip inputs making 20° bank angle turns right and left. Confirm that the aircraft remains in trim. (Trim ball may slide out ½-ball width but must stabilize within ¼-ball width of neutral.)

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-241-MTF

TASK NO: TF 7247

TASK: Perform AFCS evaluation (D model).

CONDITION: In a CH-47D helicopter, in flight.

STANDARDS:

1. Airspeed maintained below 120 KIAS.
2. Aircraft cleared.
3. AFCS in BOTH, NO. 1, and NO. 2 systems checked.
4. Heading select checked.
5. Barometric altitude hold maintains altitude within ±100 feet during check.
6. DASH actuator low rate operation checked.
7. Malfunction or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: With airspeed at 110 KIAS and BARO ALT hold engaged, check AFCS in BOTH, NO. 1, and NO. 2 systems for stability and trim operations in pitch, roll, and bank angle hold/coordinated turn. Check heading select. Conduct BARO ALT hold test by slipping the thrust control to change altitude 75 feet both up and down. Conduct DASH actuator low-rate operation check.

REFERENCES:

TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF

TASK NO: TF 7250

TASK: Perform self-tuned vibration absorber (STVA) evaluation.

CONDITION: In a CH-47 helicopter, in flight.

STANDARDS:

1. Applicable airspeeds maintained.

2. Applicable RRPM maintained.

3. STVA returned evaluation checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: In a stabilized flight at 120 KIAS and normal operating RRPM, use No. 1 and No. 2 engine beep trim switch to increase RRPM to 228 (C model) or 102 percent (D model), as appropriate. STVA should retune within 60 seconds. Increase airspeed to 140 KIAS and decrease RRPM to 222 (C model) or 98 percent (D model). STVA should retune within 60 seconds. Regain normal operating RRPM, if applicable.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7252

TASK: Perform rotor RPM droop check and thrust rod slippage check (D model).

CONDITION: In a CH-47D helicopter, in flight.

STANDARDS:

1. Entry altitude maintained ±100 feet.

2. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Stabilize airspeed at 125 KIAS. Match torques and set RRPM at 100 percent. Depress thrust brake trigger and hold. Simultaneously increase airspeed to 140 KIAS (or VNE, whichever is lower) and increase thrust to maintain altitude. Check the RRPM has not changed by more than 2 percent. Release thrust brake trigger and pressure on thrust control rod. Torque shall not change by more than 2 percent dual-engine torque.

REFERENCES:

TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF

TASK NO: TF 7260

TASK: Perform TEAC.

CONDITION: In a CH-47 helicopter, at an appropriate pressure altitude.

STANDARDS:

1. TEAC targets determined.
2. Topping stops installed.
3. KIAS of 120 to 140 maintained.
4. Engine anti-ice off (if installed).
5. TEAC performed.
6. Data recorded.
7. Recorded TEAC data analyzed.
8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

CAUTIONS

1. When the N2 actuators are in the maximum range, do not reduce thrust until RRPM has been decreased slightly with NORM ENG TRIM. Droop eliminators are not effective at the maximum actuator range.
2. When performing a TEAC on the engines with the No. 1 and No. 2 NORM ENG TRIM switch, both engine N2 actuators are being increased although the one engine is in GROUND. Monitor NORM ENG TRIM No. 1 and No. 2 switch when returning the ECL to FLIGHT to prevent exceeding RRPM and engine limits.

DESCRIPTION: Climb to predetermined pressure altitude. Maintain 120 KIAS. Set RRPM at 228 (C model) or 100 percent (D model) with NORM ENG TRIM. Move ECL for the engine not being checked to GROUND while maintaining 228 (C model) or 100 percent (D model) with NORM ENG TRIM. Increase thrust slowly, maintaining RRPM with No. 1 and No. 2 NORM ENG TRIM switch. Monitor engine acceleration to prevent exceeding N1, PTIT, or torque parameters. Upon reaching maximum NORM ENG TRIM, increase thrust lever until RRPM decreases to 225 (C model) or 98 percent (D model); allow PTIT to stabilize. Record N1, torque, PTIT, FAT, and PA. Decrease No. 1 and No. 2 NORM ENG TRIM and regain control of RRPM. Slowly move the ECL from GROUND to FLIGHT, keeping RRPM within operating limits. If a TEAC is to be performed on the second engine, proceed as above. After TEAC is completed, analyze compiled data.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF
TM 55-2840-254-23-1 through -4

TASK NO: TF 7270

TASK: Perform autorotation RPM check.

CONDITION: In a CH-47 helicopter, at sufficient altitude for power recovery.

STANDARDS:

1. RRPM range determined according to charts.
2. Cruise flight established at 70 to 100 KIAS.
3. Sufficient altitude maintained to allow power recovery above 1000 feet AGL.
4. Flight path cleared.
5. Suitable forced-landing areas available.
6. Crew notified.
7. Autorotation entered.
8. RRPM stabilized at ground detent.
9. RRPM stabilized with thrust full down; RRPM recorded.
10. Directional pedal split checked.
11. Any abnormal vibrations noted.
12. Power recover made prior to 1000 feet AGL.
13. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Establish cruise flight at 70 to 100 KIAS at an altitude sufficient to establish a stabilized autorotation and effect a power recovery above 1000 feet AGL. Clear flight path; enter autorotation by simultaneously lowering thrust to ground detent, releasing NORM ENG TRIM switches, and reducing both EMER ENG TRIM switches to maintain normal RRPM. EMER ENG TRIM switches full decrease, check RRPM is not increasing, lower thrust to full down. Record RRPM, FAT, PA, and fuel quantity. Measure and record directional pedal separation. Note any abnormal vibrations. Make a power recovery by adjusting thrust to attain the normal operating RRPM range. Engage NORM ENG TRIM switches one at a time. Reestablish operating RRPM, airspeed, and altitude. Analyze data obtained.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7290

TASK: Perform navigation and communication equipment checks.

CONDITION: In a CH-47 helicopter or orally.

STANDARDS:

1. Navigation equipment checked.

2. Communication equipment checked.

3. Malfunctions or discrepancies correctly determined and correction actions/troubleshooting procedures applied.

DESCRIPTION: Use local facilities whenever possible to check the operation of all navigation and communication equipment.

REFERENCES:

TM 55-1520-227-23-1 through -5
TM 55-1520-240-23-1 through -10
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7295

TASK: Perform after-landing checks.

CONDITION: In a CH-47 helicopter.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-240-MTF
TM 55-1520-241-MTF

TASK NO: TF 7298

TASK: Perform special/detailed procedures.

CONDITION: In a CH-47 helicopter with equipment installed.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF with changes used.

2. Additional publications used as required.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-227-10-2
TM 55-1520-227-23-series
TM 55-1520-227-CL-2
TM 55-1520-240-10
TM 55-1520-240-23 series
TM 55-1520-240-CL
TM 55-1520-240-MTF
TM 55-1520-241-MTF
TM 55-2840-254-23

TASK NO: TF 7299

TASK: Perform engine shutdown checks.

CONDITION: In a CH-47 helicopter.

STANDARDS:

1. TM 55-1520-240-MTF or TM 55-1520-241-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Droop stop engagement confirmed with flight engineer.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-240-MTF
TM 55-1520-241-MTF

7-6. CH-54 MP TASK LIST.

Task number	Task title
TF 7600	Perform prior-to-maintenance test flight checks.
TF 7602	Perform cockpit checks before starting APP.
TF 7603	Perform APP start.
TF 7604	Perform electrical systems and rotor brake checks.
TF 7605	Perform flight controls and AFCS-servo checks (CH-54B).
TF 7606	Perform aft pilot controls and rotor brake checks (CH-54B).
TF 7607	Perform fire warning and fuel systems checks.
TF 7608	Perform cargo systems check.
TF 7609	Perform engine start and run-up checks.
TF 7610	Perform AFCS and flight control checks.
TF 7611	Perform aft pilot control checks.
TF 7612	Perform rotor engagement and No. 2 engine start.
TF 7613	Perform after-starting engine checks on CH-54A.
TF 7614	Perform after-starting engine checks on CH-54B.
TF 7615	Perform before-takeoff checks.
TF 7620	Perform lift-off and hover stability checks.
TF 7621	Perform magnetic compass compensation.
TF 7626	Perform AFCS-servo and flight control hydraulic system checks.
TF 7628	Perform remote stick operation.
TF 7629	Perform engine torque matching check.
TF 7630	Perform generator dropout and single-engine hover checks.
TF 7650	Perform cruise checks.
TF 7670	Perform autorotation check.
TF 7675	Perform flight stability check.
TF 7676	Perform fuel system crossfeed checks.
TF 7690	Perform communication and navigation equipment checks.
TF 7692	Perform hoist operation.
TF 7695	Perform after-landing and engine shutdown checks.
TF 7696	Perform special/detailed procedures.

7-7. CH-54 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (CH-54)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	COCKPIT CHECKS BEFORE STARTING APP	S
3	APP START	S
4	ELECTRICAL SYSTEMS AND ROTOR BRAKE CHECKS	S
5	FLIGHT CONTROLS AND AFCS-SERVO CHECKS (CH-54B)	S
6	AFT PILOT CONTROLS AND ROTOR BRAKE CHECKS (CH-54B)	S
7	FIRE WARNING AND FUEL SYSTEMS CHECKS	S
8	CARGO SYSTEMS CHECK	S
9	ENGINE START AND RUN-UP CHECKS	S
10	AFCS AND FLIGHT CONTROL CHECKS	S
11	AFT PILOT CONTROL CHECKS	S
12	ROTOR ENGAGEMENT AND NO. 2 ENGINE START	S
13	AFTER-STARTING ENGINE CHECKS ON CH-54A	S
14	AFTER-STARTING ENGINE CHECKS ON CH-54B	S
15	BEFORE-TAKEOFF CHECKS	S
16	MAGNETIC COMPASS COMPENSATION	S
17	LIFT-OFF AND HOVER STABILITY CHECKS	S
18	AFCS-SERVO AND FLIGHT CONTROL HYDRAULIC SYSTEM CHECKS	S
19	REMOTE STICK OPERATION	S
20	ENGINE TORQUE MATCHING CHECK	S
21	GENERATOR DROPOUT AND SINGLE-ENGINE HOVER CHECKS	S
22	CRUISE CHECKS	S
23	AUTOROTATION CHECK	S
24	FLIGHT STABILITY CHECK	S
25	FUEL SYSTEM CROSSFEED CHECKS	S
26	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
27	HOIST OPERATION	S
28	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	S
29	SPECIAL PROCEDURES	S
30	ORAL EVALUATION	S
31	JMB	
32		
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NOTE ITEMS 31 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-9-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE CH-54 MTF MANEUVERS GRADE SLIP

7-8. CH-54 MP TASKS.

TASK NO: TF 7600

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In a CH-54 helicopter, before a maintenance test flight.

STANDARDS:

1. TM 55-1520-217-CL-1/-2 used.

2. Items checked in sequence.

3. Aircraft suitability for flight correctly determined.

4. Maneuvers, checks, and tasks required for test flight determined.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1520-217-CL-1/-2. Determine maneuvers or checks necessary for maintenance test flight. Use additional publications and references as necessary. Brief crew members and any supporting ground crew concerning operation around or on the helicopter and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1520-217-10-CL-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7602

TASK: Perform cockpit checks before starting APP.

CONDITION: In a CH-54 helicopter, before APP start.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7603

TASK: Perform APP start.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7604

TASK: Perform electrical systems and rotor brake checks.

CONDITION: In a CH-54 helicopter, with APP operating.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using the oral call-out and confirmation method, perform electrical system checks and check rotor brakes on CH-54A (rotor brake check for CH-54B is done after the aft pilot's control checks are completed). Check heater operation according to TM 55-1520-217-MTF-1/-2. Check CH-54B with voice warning system as per MTF checklist. Confirm that the following warning lights are OUT when the VWS AN/ASH-19 circuit breaker is pulled: • No. 1 engine N1, • No. 1 engine torque, • No. 1 engine flameout, • No. 1 engine T5, • No. 1 engine fuel flow, • No. 2 engine N1, • No. 2 engine torque, • No. 2 engine flameout, • No. 2 engine T5, • No. 2 engine fuel flow, • Rotor droop, • Main transmission torque, • Hook not open.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7605

TASK: Perform flight controls and AFCS-servo checks (CH-54B).

CONDITION: In a CH-54B helicopter, with APP operating and rotor stopped.

STANDARDS:

1. TM 55-1520-217-MTF-2 used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. Maximum cycle, collective, and tail rotor pedal jump noted.
5. Both AFCS systems checked.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using the appropriate checklist and oral call-out and confirmation method, perform AFCS-servo check. Note maximum cycle, collective, and tail rotor pedal jump. Check flight controls, cycle trim for tolerances, and collective friction operation. Check AFCS No. 1 system, baro alt, and AFCS No. 2 system (about 2 minutes are required for AFCS gyros to erect).

CAUTION

Do not move tail rotor pedals full travel in less than 5 seconds to prevent damage to collective bias cable. Do not continue to move collective pitch if it binds. Perform a normal engine shutdown and enter the condition on DA Form 2408-13 (Aircraft Inspection and Maintenance Record).

REFERENCES:

AR 95-1
TM 55-1520-217-10-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-2

TASK NO: TF 7606

TASK: Perform aft pilot controls and rotor brake checks (CH-54B).

CONDITION: In a CH-54B helicopter, with APP operating.

STANDARDS:

1. TM 55-1520-217-MTF-2 used.

2. Oral call-out and confirmation method used with aft pilot.

3. Items checked in sequence.

4. Appropriate indications on flight direction indicator noted.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Proper coordinates between pilot and aft pilot are essential. Perform aft pilot control checks in sequence according to MTF checklist. Note appropriate indications on flight director indicator when corresponding control movements are made. Next, perform rotor brake system checks.

CAUTION

When engaging aft pilot's remote stick, high deflections may cause excessive control movements during flight operation and possible damage to aircraft.

REFERENCES:

AR 95-1
TM 55-1520-217-10-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-2

TASK NO: TF 7607

TASK: Perform fire warning and fuel systems checks.

CONDITION: In a CH-54 helicopter during systems checks.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check the fire warning system and both the continuous-wire and the infrared surveillance systems. Next, check Jack and Kneel systems, avionics, and fuel systems, including caution advisory panel.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7608

TASK: Perform cargo systems check.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform the single-point, 4-point hoist damper and electro-explosive circuit systems check. Confirm with flight engineer concerning system functions.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7609

TASK: Perform engine start and run-up checks.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform the engine start and run-up checks.

> **NOTE:** After part-power check is completed as required, recheck N2 system upon completion of engine performance evaluation check. Refer to MTF, Chapter 4, for part-power trim check.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7610

TASK: Perform AFCS and flight control checks.

CONDITION: In a CH-54A helicopter, after No. 1 engine is started, or in a CH-54B helicopter, during before-starting engine checks.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Both AFCS systems on CH-54B checked.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform AFCS-servo check, flight controls check, and AFCS electrical check. (For CH-54B, check both AFCS systems.)

CAUTION

Do not move tail rotor pedals full travel in less than 5 seconds to prevent damage to collective bias cable. Do not continue to move collective pitch if it binds. Perform a normal engine shutdown and enter the condition on DA Form 2408-13.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7611

TASK: Perform aft pilot control checks.

CONDITION: In a CH-54A helicopter, before rotor engagement, or in a CH-54B, during before-starting engine checks.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform aft pilot control checks in sequence and according to TM 55-1520-217-MTF-1/-2.

CAUTION

When engaging aft pilot's remote stick, high deflections may cause excessive control movements during flight operation and possible damage to aircraft.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7612

TASK: Perform rotor engagement and No. 2 engine start.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. Outside area clear.
5. Aircraft fully jacked (CH-54A).
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensure that outside area is clear. Perform rotor brake release and flight control interlock check. With No. 1 engine at 100 percent N2, start No. 2 engine according to MTF checklist.

CAUTION

During the interlock check, if any unusual control movements are noticed in flight controls, immediately return servo switch to the ON position and shut down helicopter.

NOTE: On CH-54A helicopters, use engine pressure ration (EPR) charts as an alternate method of determining engine torque when engine torque indicator transmitters are inoperative.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7613

TASK: Perform after-starting engine checks on CH-54A.

CONDITION: In a CH-54 helicopter with both engines at full operating RPM.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Ensuring outside area is clear and nose wheel is unlocked, check pilot and copilot flight control servo switches. Raise pilot's collective approximately 1 inch and check AFCS servo. When APP stops, check EAPS/anti-ice as required with collective full down. Perform flat pitch N2 trim check and engine acceleration checks according to appropriate MTF checklist.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7614

TASK: Perform after-starting engine checks on CH-54B.

CONDITION: In a CH-54B helicopter with both engines operating.

STANDARDS:

1. TM 55-1520-217-MTF-2 used.
2. Oral call-out and confirmation method used.
3. Engine overspeed switches tested.
4. Engine acceleration and N2 trim checked.
5. Collective full down at all times.
6. Torque calibration checked.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using MTF manual checklist, check engine No. 1 and engine No. 2 overspeed switches. Perform engine acceleration checks, making smooth movements at the power levels. Check N2 trim with collective full down at all times. Check torque calibration, allowing 30 minutes for warm-up before adjusting indicators.

REFERENCES:

AR 95-1
TM 55-1520-217-23 series
TM 55-1520-217-MTF-2

TASK NO: TF 7615

TASK: Perform before-takeoff checks.

CONDITION: In a CH-54 helicopter before taxiing.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

CAUTION

Avoid excessive use of forward or aft cyclic control stick to prevent component damage.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7620

TASK: Perform lift-off and hover stability checks.

CONDITION: In a CH-54 helicopter, with before-takeoff checks completed.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.
2. Aircraft cleared.
3. Control response and hover indicator checked.
4. Hover stabilized at 20 feet.
5. Hover stability check made.
6. Power-change check completed.
7. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: As the aircraft comes to a hover, check for proper control response and corresponding hover indicator indications. Check for proper landing gear extension with flight engineer. After bringing aircraft to a hover, slowly test area. Perform hover stability checks including yaw trim turn and power-change checks according to appropriate MTF checklist. A minimum 20-foot ground clearance should be used for hover checks.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7621

TASK: Perform magnetic compass compensation.

CONDITION: In a CH-54 helicopter or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1520-214-23

TASK NO: TF 7626

TASK: Perform AFCS-servo and flight control hydraulic system checks.

CONDITION: In a CH-54 helicopter while at a hover.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. Hover (minimum 20-foot ground clearance) stabilized.
5. AFCS-servo and flight control hydraulic system checks performed.
6. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At a stabilized hover into the wind, center flight control CG and disengage AFCS amplifier. Check flight control hydraulic systems by pressing pilot's AFCS-servo momentary button, deactivating the AFCS servo. Check control response as each stage at the flight control servo is deactivated. Then repeat using copilot's flight controls. On CH-54B, check both AFCS 1 and 2 systems.

CAUTION

If cyclic, collective, or pedals jam or if any unusual forces or feedback is felt, release the AFCS-servo momentary button. Land and determine cause.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7628

TASK: Perform remote stick operation.

CONDITION: In a CH-54 helicopter, with aft-facing pilot at the controls.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Aircraft stabilized at a hover.

3. Remote stick operational check performed.

4. Positive transfer of controls used.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: The forward-facing pilot will trim helicopter for a steady hover with AFCS engaged. The aft-facing pilot should assume control of the helicopter only when authorized by forward pilot. Aft pilot should check remote stick operation in normal remote, auxiliary remote, and auxiliary remote without AFCS. Aft pilot should transfer control of aircraft to forward pilot and disengage remote stick.

CAUTION

When aft pilot's remote stick is engaged, high deflections may cause excessive control movements during flight operation and possible damage to aircraft.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7629

TASK: Perform engine torque matching check.

CONDITION: In a CH-54B helicopter, with takeoff to a hover check completed.

STANDARDS:

1. Aircraft cleared.

2. A 20-foot hover maintained.

3. Aircraft headed into wind.

4. Aircraft torque limits not exceeded.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While maintaining hover altitude of 20 feet, clear aircraft overhead, left and right. Smoothly and positively increase collective to increase torque from 50 percent to 60 percent. Cross-check Nr and torque gage to determine any change in Nr (increase or decrease) or torque split greater than 3 percent. Slowly return aircraft to a 20-foot hover and determine if any adjustments are required.

REFERENCES:

TM 55-1520-217-10-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-2

TASK NO: TF 7630

TASK: Perform generator dropout and single-engine hover checks.

CONDITION: In a CH-54 helicopter, before takeoff and climb.

STANDARDS:

1. A 20-foot hover maintained.

2. Generator dropout check performed.

3. Single-engine hover checks performed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At a stabilized hover, reduce rotor speed to 90 percent Nr; generators should remain on line. Increase rotor speed to normal range. Perform single-engine hover checks without exceeding aircraft limitations; record appropriate information on MTF check sheet. Use flight engineer to record all engine readings while operating single engine. Reestablish dual-engine operation and perform normal takeoff; climb to cruise altitude.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7650

TASK: Perform cruise checks.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. Predetermined altitude maintained.

2. Auxiliary fuel system checked.

3. Different airspeeds flown.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: In a straight-and-level flight, check auxiliary fuel system quantity indicators and fly at different airspeeds up to VNE. Check for smooth operation, unusual vibrations, and cyclic position. Stabilize at predetermined altitude and airspeed. Record engine and transmission indications.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7670

TASK: Perform autorotation check.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. Check altitude determined. Altitude for power recovery 500 feet AGL or above.

2. At 700 to 1000 feet above check altitude cruise flight, flight path clear, airspeed 70 KIAS, and AFCS off.

3. Suitable forced-landing areas available.

4. Pilot's altimeter set at 29.92.

5. Autorotation entered; 70 KIAS +5 -0 KIAS maintained.

6. Nr, OAT, and fuel quantity at check altitude recorded.

7. Power recovery made (500 feet AGL or above) with AFCS on.

8. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Set pilot's altimeter at 29.92. Climb to check altitude and level off. Maintain altitude until FAT stabilizes; record, then climb an additional 700 to 1000 feet, level off, and stabilize at 70 KIAS with AFCS off. While heading into the wind with suitable landing site available, slowly reduce collective to minimum, holding 70 KIAS. At check altitude, record percent Nr and fuel quantity; check for 70 KIAS. Recover at safe altitude above ground with AFCS on; reset altimeter and determine results of autorotation check.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7675

TASK: Perform flight stability check.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. Constant altitude at 90 KIAS maintained.

2. Flight stability check performed.

3. Barometer altitude checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Trim helicopter for a straight-and-level flight at 90 KIAS with baro alt engaged. Stabilize flight for 2 minutes. Verify ±1° pitch, ±3° roll, and trim maintained within limits. Perform push/pull release check (push/pull and hold). Check manual turns and trim turns. Stabilize helicopter at 70 KIAS and perform baro alt autorotation. Recover and trim helicopter for 90 KIAS. Check heater system at 90 KIAS during high and low operation.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7676

TASK: Perform fuel system cross-feed checks.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Fuel system cross-feed check performed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform fuel system cross-feed check according to MTF checklist, following proper sequence.

NOTE: Deplete a minimum of 100 pounds of fuel per fuel tank being checked.

REFERENCES:

TM 55-1520-217-10-1/-2
TM 55-1520-217-23 series
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7690

TASK: Perform communication and navigation equipment checks.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. Communication equipment checked.

2. Navigation equipment checked.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check operation of all communication and navigation equipment using the indigenous facilities.

REFERENCES:

TM 55-1520-217-10-1-/-2
TM 55-1520-217-23 series
TM 55-1520-MTF-1/-2

TASK NO: TF 7692

TASK: Perform hoist operation.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Maximum gross limitations of helicopter not exceeded.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Pick up a weight of 8000 to 10,000 pounds and note winch load indication. At a 10-foot load height, perform hover stability checks, cyclic response, and rigging. At about 120 feet, aft pilot should check down limit and cable length indication. Hoist load up to position cable so that load is below main gear. Check up/down operation from pilot's, copilot's, and aft positions. Set aside switch; stow cargo hook.

CAUTION

Use caution when operating hoist above up-limit position, as hoist may be damaged.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7695

TASK: Perform after-landing and engine shutdown checks.

CONDITION: In a CH-54 helicopter.

STANDARDS:

1. TM 55-1520-217-MTF-1/-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1520-217-10-1/-2
TM 55-1520-217-MTF-1/-2

TASK NO: TF 7696

TASK: Perform special/detailed procedures.

CONDITION: In a CH-54 helicopter with equipment installed.

STANDARDS:

1. TM 55-1520-217-MTF with changes used.
2. Additional publications used as required.
3. Oral call-out and confirmation method used.
4. Items checked in sequence.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and 3
TM 1-1500-328-25
TM 1-1520-217-10
TM 55-1520-217-23 series
TM 55-1520-217-CL-1/-2
TM 55-1520-217-MTF-1/-2

CHAPTER 8

FIXED-WING AIRPLANE MAINTENANCE TEST PILOT TASKS (UTILITY/CARGO)

8-1. GENERAL. This chapter contains the airplane maintenance test pilot tasks and their conditions, standards, and descriptions. Although the contents of this chapter are advisory only, they are suitable for incorporation into local aviation standardization programs. Chapters 1, 2, and 3 may be used as guidance in establishing and administering a fixed-wing MP program. Tasks will be performed for both training and evaluation. If discrepancies are found between this chapter and the MTF manual, the MTF manual takes precedence. Submit DA Form 2028 as directed in the preface of this manual.

8-2. U-21 MP TASK LIST.

Task number	Task title
TF 8200	Perform prior-to-maintenance test flight checks.
TF 8205	Perform before-starting engine checks.
TF 8210	Perform engine start checks.
TF 8212	Perform aircraft taxi.
TF 8213	Perform magnetic compass compensation.
TF 8215	Perform engine run-up checks.
TF 8216	Perform before-takeoff checks.
TF 8217	Perform during-takeoff checks.
TF 8219	Perform after-takeoff checks.
TF 8220	Perform during-climb checks.
TF 8225	Perform during-cruise checks.
TF 8230	Perform speed-power check.
TF 8235	Perform trim and rigging check.
TF 8240	Perform stall, warning, speed, and characteristic checks.
TF 8245	Perform flap operation check.
TF 8250	Perform manual propeller feathering and unfeathering check.
TF 8255	Perform propeller autofeathering system check.
TF 8260	Perform engine performance check (except RU-21B, C).
TF 8265	Perform maximum rate-of-descent check.
TF 8268	Perform landing gear warning horn and silence button check.
TF 8275	Perform emergency landing gear extension system check.
TF 8290	Perform communication and navigation equipment checks.
TF 8291	Perform descent-arrival check.
TF 8292	Perform before-landing check.
TF 8293	Perform landing check.
TF 8295	Perform after-landing check.
TF 8296	Perform special/detailed procedures.
TF 8299	Perform engine shutdown checks.

8-3. U-21 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (U-21)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINES CHECK	S
3	ENGINE START CHECK	S
4	AIRCRAFT TAXI	S
5	MAGNETIC COMPASS COMPENSATION	S
6	ENGINE RUN-UP CHECK	S
7	BEFORE-TAKEOFF CHECKS	S
8	DURING-TAKEOFF CHECKS	S
9	AFTER-TAKEOFF CHECKS	S
10	DURING-CLIMB CHECKS	S
11	DURING-CRUISE CHECKS	S
12	SPEED-POWER CHECK	S
13	TRIM AND RIGGING CHECK	S
14	STALL, WARNING, SPEED, AND CHARACTERISTIC CHECKS	S
15	FLAP OPERATION CHECK	S
16	MANUAL PROPELLER FEATHERING AND UNFEATHERING CHECK	S
17	PROPELLER AUTOFEATHERING SYSTEM CHECK	S
18	ENGINE PERFORMANCE CHECK (EXCEPT RU-21B,C)	S
19	MAXIMUM RATE-OF-DESCENT CHECK	S
20	LANDING GEAR WARNING HORN AND SILENCE BUTTON CHECK	S
21	EMERGENCY LANDING GEAR EXTENSION SYSTEM CHECK	S
22	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
23	DESCENT-ARRIVAL CHECK	S
24	BEFORE-LANDING CHECK	S
25	LANDING CHECK	S
26	AFTER-LANDING CHECK	S
27	SPECIAL PROCEDURES	S
28	ENGINE SHUTDOWN CHECKS	S
29	ORAL EVALUATION	S
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SAMPLE

NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-6-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE U-21 MTF MANEUVERS GRADE SLIP

8-4. TASK CONTENT. Each task contains a task number and title, conditions, standards, description, and references as appropriate.

a. *Task Number and Title*. Each task is identified by a task number and title that correspond to the MP task lists in paragraphs 8-2 for the U-21 and 8-6 for the C-12.

b. *Condition*. The condition statement includes the resources that are available to the MP to perform the task, the circumstances—including environmental factors—in which it will be performed, and any applicable restrictions.

c. *Standards*. The standards describe those elements of performance that must be completed satisfactorily and in the proper sequence to achieve successful performance of the task. Standards may be objective (measurable) or subjective (judgmental).

d. *Description*. This paragraph provides, in narrative form, any additional information that may be needed to explain how the task should be performed to meet the standards.

e. *References*. Publications that must be used or are helpful in performing the task are listed.

8-5. U-21 MP TASKS.

TASK NO: TF 8200

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In a U-21 airplane, before flight.

STANDARDS:

1. TM 55-1510-209-10, TM 55-1510-214-10, or TM 55-1510-215-10-2 used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Use applicable referenced publications as needed.

REFERENCES:

AR 95-1
TM 55-1510-209-10
TM 55-1510-214-10
TM 55-1510-215-10
TM 55-1510-215-10-2

TASK NO: TF 8205

TASK: Perform before-starting engine checks.

CONDITION: In a U-21 airplane, before engine starts.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8210

TASK: Perform engine start checks.

CONDITION: In a UH-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8212

TASK: Perform aircraft taxi.

CONDITION: In a U-21 airplane, with before-taxi procedures completed.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8213

TASK: Perform magnetic compass compensation.

CONDITION: In a U-21 airplane or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1510-200-23

TASK NO: TF 8215

TASK: Perform engine run-up checks.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Related instruments and equipment for normal indications monitored.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8216

TASK: Perform before-takeoff checks.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8217

TASK: Perform during-takeoff checks.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. Performance planning card (PPC) completed.

2. TM 55-1510-200-MTF used.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Complete the lineup procedures. Smoothly apply takeoff power. Takeoff power should be applied before releasing brakes. During takeoff, ensure that aircraft and engine limitations are not exceeded. Monitor instruments for normal indications. Copilot/observer should make required recordings.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8219

TASK: Perform after-takeoff checks.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8220

TASK: Perform during-climb checks.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: If conditions allow, a climb to 8000 feet AGL is recommended.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8225

TASK: Perform during-cruise checks.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: These checks should be accomplished at 8000 feet AGL.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8230

TASK: Perform speed-power check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At an 8000-foot pressure altitude with the copilot's altimeter set at 29.92, ensure that propellers are at 1900 RPM and power levers are set at 800 foot-pounds of torque. Allow speed and systems to stabilize; then record FAT (+4°), ITT, N1, fuel flow, and KIAS. Compare KIAS/FAT with figure from speed-power chart.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8235

TASK: Perform trim and rigging check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: During cruise in smooth air, adjust trim and tab controls to zero. The aircraft should fly straight and level with hands off. Adjust tab control as necessaary until the aircraft will fly, with hands off, straight and level. Record tab control position for possible adjustment.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8240

TASK: Perform stall, warning, speed, and characteristic checks.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at slow cruise with landing gear and flaps up, clear the area. Bring power levers to IDLE and trim the aircraft to appropriate speed (according to TM 55-1510-200-MTF); then begin reducing airspeed by 1 KIAS/second until the aircraft stalls. Note airspeed when stall warning horn is first heard. On RU-21H, check that stall warning silencer switch will silence (disable); then rearm the horn. Note the airspeed at stall and handling characterics (roll must be controllable within 30° left or right); then execute recovery. Repeat check with gear down below 154 KIAS, and flaps (100 percent) below 130 KIAS (H model) or 127 KIAS (A model).

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8245

TASK: Perform flap operation check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at cruise, straight and level at 173 KIAS or below, place flaps to APPROACH position. Check for abnormal roll characteristics and check flaps for smoothness and freedom of operation. Reduce airspeed to 130 KIAS (H model) or 127 (A model) or below and place flaps to full DOWN position (100 percent). Again check for abnormal roll characteristics and check flaps for smoothness and freedom of operation.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8250

TASK: Perform manual propeller feathering and unfeathering check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check one engine at a time. Adjust airspeed to 115 KIAS, propellers to 2200 RPM, and propeller autofeather switches to OFF. Retard power lever on engine to be feathered to IDLE. Move the condition lever on engine to be feathered to FEATHER and note time to feather. Time to feather must not exceed 10 seconds from windmilling at 2200 RPM to stationary in the feathered position. Perform engine restart; then move propeller lever out of feather. Propeller tachometer must reach 1000 RPM within 30 seconds or less. Repeat for other engine. Synchronize propellers and adjust power as required.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8255

TASK: Perform propeller autofeathering system check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check one engine at a time. Adjust airspeed to 100 KIAS, place autofeather switch to ARM, and adjust propeller to 2200 RPM. Set climb power (N1 above 92 percent); then place condition lever on engine to be feathered to FUEL CUTOFF. Record the time from fuel cutoff until propeller rotation is stopped in feathered position. Move the propeller lever to the FEATHER position. Perform engine restart, move propeller lever out of feather, synchronize propeller, and adjust power as required. Repeat for other engine.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8260

TASK: Perform engine performance check (except RU-21B, C).

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined andcorrective actions/troubleshooting procedures applied.

DESCRIPTION: Set copilot's altimeter to 29.92 Hg. Climb to a 10,000-foot PA. Set propellers to 2200 RPM and note FAT. Ensure that ice vanes are retracted. Set torque on engine being checked to appropriate torque setting derived from the engine performance torque chart. Set power on the opposite engine as required to maintain 130 KIAS. Allow conditions to stabilize for 1 minute. Record the following for the engine being checked: airspeed, PA, FAT, ITT, propeller RPM, torque, and N1 percent. Repeat process for the other engine as required.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8265

TASK: Perform maximum rate-of-descent check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At a 10,000-foot PA, set power to 800 to 1000 foot-pounds of torque and propellers to 1900 RPM. Ensure that landing gear and flaps are up. Lower the nose of the airplane and let airspeed increase to 208 KIAS. Monitor the flight controls for any indication of flutter and the airframe for any oscillations or vibrations. Note windows and door for any excessive noise indicating an air leak. Level off the aircraft at 5000 feet and resume normal cruise.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8268

TASK: Perform landing gear warning horn and silence button check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at cruise, slowly retard one power lever, simultaneously monitoring the appropriate turbine tachometer until the landing gear warning horn first sounds. Note the N1 speed at which the horn was first heard. Press the warning horn silence button; the horn should be silenced. Lower flaps to APPROACH position and ensure that the horn sounds again; then raise flaps. Advance the power lever to previous setting. Repeat check using the other power lever.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8275

TASK: Perform emergency landing gear extension system check.

CONDITION: In a U-21 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Adjust the airspeed to 154 KIAS or lower. Pull out the landing gear power circuit breaker and place the landing gear control handle in the DOWN position. Pull up on the landing gear emergency clutch, disengage lever, and turn 90° clockwise. Using the landing gear emergency extension handle, pump up and down until the three green gear-down position indication lights illuminate. Reengage the landing gear emergency clutch and disengage lever by pulling up and turning it 90° counterclockwise. Push in the landing gear power circuit breaker. Slow the aircraft to 127 KIAS; then place the landing gear control handle in the UP position and verify retraction of the landing gear.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8290

TASK: Perform communication and navigation equipment checks.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Communication equipment checked.

3. Navigation equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8291

TASK: Perform descent-arrival check.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8292

TASK: Perform before-landing check.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8293

TASK: Perform landing check.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8295

TASK: Perform after-landing check.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

TASK NO: TF 8296

TASK: Perform special/detailed procedures.

CONDITION: In a U-21 airplane with equipment installed.

STANDARDS:

1. TM 55-1520-200-MTF with changes used.

2. Additional publications used as required.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1510-209-10
TM 55-1510-214-10
TM 55-1510-215-10 series
TM 55-1520-200-MTF

TASK NO: TF 8299

TASK: Perform engine shutdown checks.

CONDITION: In a U-21 airplane.

STANDARDS:

1. TM 55-1510-200-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-200-MTF

8-6. C-12 MP TASK LIST.

Task number	Task title
TF 8600	Perform prior-to-maintenance test flight checks.
TF 8605	Perform before-starting engine checks.
TF 8610	Perform engine start checks.
TF 8611	Perform before-taxiing check.
TF 8612	Perform aircraft taxiing check.
TF 8613	Perform magnetic compass compensation.
TF 8615	Perform engine run-up checks.
TF 8616	Perform before-takeoff checks.
TF 8617	Perform during-takeoff checks.
TF 8619	Perform after-takeoff checks.
TF 8620	Perform during-climb checks.
TF 8621	Perform pressurization system check.
TF 8625	Perform during-cruise checks.
TF 8630	Perform speed check at maximum cruise power.
TF 8631	Perform maximum power-lever position check.
TF 8632	Perform engine acceptance check.
TF 8633	Perform engine ice vanes check.
TF 8635	Perform trim and rigging check.
TF 8636	Perform autopilot check.
TF 8640	Perform stall, warning, speed, and characteristic checks.
TF 8645	Perform flap operation check.
TF 8646	Perform minimum elevator trim check.
TF 8647	Perform autoignition check.
TF 8650	Perform manual propeller feathering and unfeathering check.
TF 8655	Perform propeller autofeathering system check.
TF 8665	Perform maximum rate-of-descent check.
TF 8668	Perform landing gear warning horn and operation check.
TF 8675	Perform emergency landing gear extension system check.
TF 8676	Perform elevator trim check.
TF 8690	Perform communication and navigation equipment checks.
TF 8691	Perform descent check.
TF 8692	Perform before-landing check.
TF 8693	Perform landing check.
TF 8695	Perform after-landing check.
TF 8696	Perform special/detailed procedures.
TF 8699	Perform engine shutdown checks.

8-7. C-12 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (C-12)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINE CHECKS	S
3	ENGINE START CHECKS	S
4	BEFORE-TAXIING CHECK	S
5	AIRCRAFT TAXIING CHECK	S
6	MAGNETIC COMPASS COMPENSATION	S
7	ENGINE RUN-UP CHECKS	S
8	BEFORE-TAKEOFF CHECKS	S
9	DURING-TAKEOFF CHECKS	S
10	AFTER-TAKEOFF CHECKS	S
11	DURING-CLIMB CHECKS	S
12	PRESSURIZATION SYSTEM CHECK	S
13	DURING-CRUISE CHECKS	S
14	SPEED CHECK AT MAXIMUM CRUISE POWER	S
15	MAXIMUM POWER-LEVER POSITION CHECK	S
16	ENGINE ACCEPTANACE CHECK	S
17	ENGINE ICE VANES CHECK	S
18	TRIM AND RIGGING CHECK	S
19	AUTOPILOT CHECK	S
20	STALL, WARNING, SPEED, AND CHARACTERISTIC CHECKS	S
21	FLAP OPERATION CHECK	S
22	MINIMUM ELEVATOR TRIM CHECK	S
23	AUTOIGNITION CHECK	S
24	MANUAL PROPELLER FEATHERING AND UNFEATHERING CHECK	S
25	PROPELLER AUTOFEATHERING SYSTEM CHECK	S
26	MAXIMUM RATE-OF-DESCENT CHECK	S
27	LANDING GEAR WARNING HORN AND OPERATION CHECK	S
28	EMERGENCY LANDING GEAR EXTENSION SYSTEM CHECK	S
29	ELEVATOR TRIM CHECK	S
30	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
31	DESCENT CHECK	S
32	BEFORE LANDING CHECK	S
33	LANDING CHECK	S
34	AFTER-LANDING CHECK	S
35	SPECIAL PROCEDURES	S
36	ENGINE SHUTDOWN CHECKS	S
37	ORAL EVALUATION	S
38	JMB	
39		
40		

NOTE ITEMS 38 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

SAMPLE

DA FORM 5051-8-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE C-12 MTF MANEUVERS GRADE SLIP

8-8. C-12 MP TASKS

TASK NO: TF 8600

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In a C-12 airplane, before flight.

STANDARDS:

1. TM 55-1510-218-CL used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. All discrepancies recorded.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-CL
TM 55-1510-218-MTF

TASK NO: TF 8605

TASK: Perform before-starting engine checks.

CONDITION: In a C-12 airplane, before engine starts.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. All discrepancies recorded.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8610

TASK: Perform engine start checks.

CONDITION: In a C-12 airplane.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8611

TASK: Perform before-taxiing check.

CONDITION: In a C-12 airplane, before taxiing.

STANDARDS:

1. TM 55-1510-218-MTF used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. All discrepancies recorded.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8612

TASK: Perform aircraft taxiing check.

CONDITION: In a C-12 airplane.

STANDARDS:

1. TM 55-1510-218-MTF used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. All discrepancies recorded.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8613

TASK: Perform magnetic compass compensation.

CONDITION: In a C-12 airplane or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1510-218-23

TASK NO: TF 8615

TASK: Perform engine run-up checks.

CONDITION: In a C-12 airplane.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Related instruments and equipment for normal indications monitored.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8616

TASK: Perform before-takeoff checks.

CONDITION: In a C-12 airplane.

STANDARDS:

1. TM 55-1510-218-MTF used.
2. Oral call-out and confirmation method used.
3. Items checked in sequence.
4. All discrepancies recorded.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8617

TASK: Perform during-takeoff checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. PPC completed.
2. TM 55-1510-218-MTF used.
3. Oral call-out and confirmation method used.
4. Items checked in sequence.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Complete the lineup procedures. Smoothly apply takeoff power. Takeoff power should be applied before releasing brakes. Release brakes; maintain aircraft alignment with runway while manipulating flight controls to correct for the effect of the wind. Check for positive control responses during the takeoff roll. During takeoff, ensure that aircraft and engine limitations are not exceeded. Monitor instruments for normal indications. Copilot/observer should make required recordings.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8619

TASK: Perform after-takeoff checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8620

TASK: Perform during-climb checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: If conditions allow, a climb to 16,000 feet is recommended.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8621

TASK: Perform pressurization system check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: If conditions allow, climb to a 26,000-foot PA.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8625

TASK: Perform during-cruise checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8630

TASK: Perform speed check at maximum cruise power.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At a recommended PA of 26,000 feet with ice vanes retracted, determine proper airspeed, power, and propeller RPM from applicable maximum cruise power chart in TM 55-1510-218-MTF. In smooth air, set predetermined propeller RPM and power. Let the airplane stabilize at an airspeed which should match the predetermined setting from the applicable maximum cruise power chart. If TGTs exceed 730°C for PT6A-41 or 685°C for PT6A-38, an engine acceptance check must be performed.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8631

TASK: Perform maximum power-lever position check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8632

TASK: Perform engine acceptance check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At a recommended PA of 26,000 feet, set propellers to appropriate RPM (2000 RPM, C-12A) (1900 RPM, C-12C and C-12D). Note FAT. Ensure that ice vanes are retracted and bleed-air valve switches are open (C-12C and C-12D) and closed (C-12A). Set torque as determined from applicable engine acceptance chart in TM 55-1510-218-MTF and adjust opposite engine power to maintain 175 KIAS (C-12C and C-12D) or 160 KIAS (C-12A). Allow conditions to stabilize for 1 minute; then record the following for the engine being checked: airspeed, PA, FAT, TGT, torque, and N1 percent. Repeat process for other engine as required.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8633

TASK: Perform engine ice vanes check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8635

TASK: Perform trim and rigging check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: During cruise in smooth air, adjust trim tabs to zero. The aircraft should fly straight and level with hands off. Adjust tab control as necessary until the aircraft will fly, with hands off, straight and level. Record tab control position for possible adjustment.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8636

TASK: Perform autopilot check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8640

TASK: Perform stall, warning, speed, and characteristic checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at slow cruise with landing gear and flaps up, clear the area. Bring both power levers to IDLE and trim the aircraft to appropriate speed (from TM 55-1510-218-MTF); then begin reducing airspeed by 1 KIAS/second until the aircraft stalls. Note the airspeed when the warning horn is first heard. Note the airspeed at stall and the handling characteristics (roll must be within 15° left or right); then execute a recovery. Repeat check with gear down below 181 KIAS and flaps down (100 percent) below 143 KIAS (C-12A and C-12C) or 154 KIAS (C-12D).

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8645

TASK: Perform flap operation check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at slow cruise, straight and level at 199 KIAS or below, extend flaps to APPROACH position. Check for abnormal roll characteristics and check flaps for smoothness and freedom of operation. Reduce airspeed to below 143 KIAS (C-12A and C-12C) or 154 KIAS (C-12D) and place flaps to full-down position (100 percent). Again check for abnormal roll characteristics; check flaps for smoothness of operation. Bring flaps to full-up position and note travel time does not exceed 9 seconds. Place flaps to full-down (100 percent) position and note travel time does not exceed 13 seconds. Return flaps to full up.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8646

TASK: Perform minimum elevator trim check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at slow cruise, straight and level at 181 KIAS or below, place gear DOWN and flaps to APPROACH. Slow to below 143 KIAS (C-12A and C-12C) or 154 KIAS (C-12D) and place flaps to full DOWN (100 percent). Bring both power levers to IDLE and place propellers to high RPM. Set full nose up with elevator trim tab control wheel. Let airspeed stabilize and record. Airspeed should be between 82 and 92 KIAS. Bring gear and flaps up and adjust power as necessary.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8647

TASK: Perform autoignition check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Place both ENG AUTOIGN switches to the ARM position. Slowly retard both POWER levers, noting the point at which the respective IGN ON annunciator light illuminates (between 21 and 16 percent torque). Reestablish cruise power and recheck that AUTOFEATHER switch is OFF. Checking the engines individually, rapidly retard the CONDITION lever to FUEL CUTOFF for 3 seconds and return to LOW IDLE. Engine light should relight within 3 to 5 seconds. Monitor engine acceleration and TGT rise. If any abnormalities occur, abort the start; then restart the engine using normal procedures. Repeat procedures for other engine.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8650

TASK: Perform manual propeller feathering and unfeathering check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check one engine at a time. Adjust airspeed to 120 KIAS, set propellers to 2000 RPM, and AUTOFEATHER switches to OFF. Retard POWER lever on engine to be feathered at IDLE CUTOFF. Move PROP lever on engine to be feathered to FEATHER and note time. Time to feather must not exceed 10 seconds from windmilling at 2000 RPM to no rotation in the feathered position. Restart engine; move PROP lever out of FEATHER. Propeller tachometer must reach 1000 RPM in 30 seconds or less. Repeat for other engine. Adjust power as required.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8655

TASK: Perform propeller autofeathering system check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check one engine at a time. Adjust airspeed to 103 KIAS, place AUTOFEATHER switch to ARM, and adjust propellers to 2000 RPM. Set climb power (N1 above 92 percent); then place CONDITION lever on engine to be feathered to FUEL CUTOFF. Record the time from fuel cutoff until propeller rotation is stopped in the feathered position. Move the propeller lever on the dead engine to the FEATHER position. Restart engine, move PROP lever out of FEATHER, and adjust power as required. Repeat for other engine.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8665

TASK: Perform maximum rate-of-descent check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At a PA above 18,000 feet, set power to 50 to 60 percent torque and propellers to 1900 RPM. Ensure that landing gear and flaps are up. Lower nose of the airplane; let airspeed increase to the appropriate airspeed as determined from the VMO dive chart in TM 55-1510-218-MTF. Monitor the flight controls for any indication of flutter and the airframe for any oscillations or vibrations. Note windows and doors for any excessive noise indicating an air leak. Level off the aircraft at 10,000 feet and resume normal cruise.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8668

TASK: Perform landing gear warning horn and operation check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at slow cruise, slowly retard one power lever, simultaneously monitoring the appropriate turbine tachometer until the landing gear warning horn sounds. Note the N1 speed at which the horn is first heard. It should be between 79 and 81 percent N1 with airspeed below 140 KIAS. Repeat check using the other power lever. With airspeed below 1 KIAS, extend flaps beyond the APPROACH position (40 percent); note that warning horn sounds again. Bring flaps up and resume slow cruise. At an airspeed below 181 KIAS, place LDG GEAR CONTR handle to the DOWN position. Time gear extension (not to exceed 6 seconds). Check LDG GEAR CONTR handle and GEAR DOWN indicator lights for proper illumination. Reduce airspeed to below 163 KIAS and retract landing gear. Time the retraction to a maximum of 7 seconds. Verify proper indication of the LDG GEAR CONTR handle and GEAR DOWN indicator lights.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8675

TASK: Perform emergency landing gear extension system check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Adjust airspeed to 130 KIAS or lower. Pull out LANDING GEAR RELAY circuit breaker and place the LDG GEAR CONTR handle in the DOWN position. Pull up on the landing gear alternate engage handle and turn clockwise to STOP (approximately ¼ turn). Using the alternate landing gear extension handle, pump up and down until the three gear-down indicating lights have illuminated. Disengage the alternate engage handle. Push in the LANDING GEAR RELAY circuit breaker. Then place the LDG GEAR CONTR handle in the UP position and verify the retraction of the landing gear.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8676

TASK: Perform elevator trim check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Set PROP levers to 2000 RPM, POWER levers to 100 percent torque (not to exceed N1 or TGT limits), and airspeed to 250 KIAS; trim aircraft. Nose-down trim should be at least 0.9 but should not exceed 1.4 trim wheel indicator units. Resume normal cruise.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8690

TASK: Perform communication and navigation equipment checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Communication equipment checked.

3. Navigation equipment checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8691

TASK: Perform descent check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8692

TASK: Perform before-landing check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8693

TASK: Perform landing check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8695

TASK: Perform after-landing check.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

TASK NO: TF 8696

TASK: Perform special/detailed procedures.

CONDITION: In a C-12 airplane with equipment installed.

STANDARDS:

1. TM 55-1510-218-MTF with changes used.
2. Additional publications used as required.
3. Oral call-out and confirmation method used.
4. Items checked in sequence.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1510-218-10
TM 55-1510-218-CL
TM 55-1510-218-MTF

TASK NO: TF 8699

TASK: Perform engine shutdown checks.

CONDITION: In a C-12 airplane, during the day, under VMC.

STANDARDS:

1. TM 55-1510-218-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-218-10
TM 55-1510-218-MTF

CHAPTER 9

FIXED-WING AIRPLANE MAINTENANCE TEST PILOT TASKS (OBSERVATION/RECONNAISSANCE)

9-1. GENERAL. This chapter contains OV/RV-1 airplane maintenance test pilot tasks and their conditions, standards, and descriptions. Although the contents of this chapter are advisory only, they are suitable for incorporation into local aviation standardization programs. Tasks will be performed for both training and evaluation. If discrepancies are found between this chapter and the MTF manual, the MTF manual takes precedence. Submit DA Form 2028 as directed in the preface of this manual.

9-2. OV/RV-1 MP TASK LIST.

Task number	Task title
TF 9200	Perform prior-to-maintenance test flight checks.
TF 9205	Perform before-starting engines check.
TF 9210	Perform starting engines check.
TF 9211	Perform before-taxiing checks.
TF 9212	Perform aircraft taxiing checks.
TF 9213	Perform magnetic compass compensation.
TF 9215	Perform engine run-up checks.
TF 9216	Perform before-takeoff checks.
TF 9217	Perform during-takeoff checks.
TF 9219	Perform after-takeoff checks.
TF 9220	Perform during-climb checks.
TF 9225	Perform during-cruise checks.
TF 9235	Perform trim and rigging check.
TF 9236	Perform autopilot/flight director operations.
TF 9241	Perform single-engine check.
TF 9242	Perform air-start check.
TF 9243	Perform emergency unfeather check.
TF 9245	Perform flap operation check.
TF 9264	Perform speed board operational check.
TF 9265	Perform high-speed dive.
TF 9268	Perform gear extension/retraction check.
TF 9290	Perform communication and navigation equipment checks.
TF 9291	Perform descent-arrival check.
TF 9292	Perform before-landing check.
TF 9293	Perform landing check.
TF 9295	Perform after-landing check.
TF 9298	Perform special/detailed procedures.
TF 9299	Perform engine shutdown checks.

9-3. OV/RV-1 MTF MANEUVERS GRADE SLIP.

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OV/RV-1)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name BROWN, JOE M. Date 15 JUL 90

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	S
2	BEFORE-STARTING ENGINES CHECK	S
3	STARTING ENGINES CHECK	S
4	BEFORE-TAXIING CHECKS	S
5	AIRCRAFT TAXIING CHECKS	S
6	MAGNETIC COMPASS COMPENSATION	S
7	ENGINE RUN-UP CHECKS	S
8	BEFORE-TAKEOFF CHECKS	S
9	DURING-TAKEOFF CHECKS	S
10	AFTER-TAKEOFF CHECKS	S
11	DURING-CLIMB CHECKS	S
12	DURING-CRUISE CHECKS	S
13	TRIM AND RIGGING CHECK	S
14	AUTOPILOT/FLIGHT DIRECTOR OPERATIONS	S
15	SINGLE-ENGINE CHECK	S
16	AIR-START CHECK	S
17	EMERGENCY UNFEATHER CHECK	S
18	FLAP OPERATION CHECK	S
19	SPEEDBOARD OPERATIONAL CHECK	S
20	HIGH-SPEED DIVE	S
21	GEAR EXTENSION/RETRACTION CHECK	S
22	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	S
23	DESCENT-ARRIVAL CHECK	S
24	BEFORE-LANDING CHECK	S
25	LANDING CHECK	S
26	AFTER-LANDING CHECK	S
27	SPECIAL PROCEDURES	S
28	ENGINE SHUTDOWN CHECKS	S
29	ORAL EVALUATION	S
30	JMB.	
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SAMPLE

NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-10-R, JUL 90 EDITION OF JUN 86 OBSOLETE

SAMPLE OV/RV-1 MTF MANEUVERS GRADE SLIP

9-4. TASK CONTENT. Each task contains a task number and title, condition, standards, description, and references as appropriate.

a. *Task Number and Title.* Each task is identified by a task number and title that correspond to the MP task list in paragraph 9-2 for the OV/RV-1.

b. *Condition.* The condition statement includes the resources that are available to the MP to perform the task, the circumstances—including environmental factors—in which it will be performed, and any applicable restrictions.

c. *Standards.* The standards describe those elements of performance that must be completed satisfactorily and in the proper sequence to achieve successful performance of the task. Standards may be objective (measurable) or subjective (judgmental).

d. *Description.* This paragraph provides, in narrative form, any additional information that may be needed to explain how the task should be performed to meet the standards.

e. *References.* Publications that must be used or are helpful in performing the task are listed.

9-5. OV/RV-1 MP TASKS.

TASK NO: TF 9200

TASK: Perform prior-to-maintenance test flight checks.

CONDITION: In an OV/RV-1 airplane, before flight.

STANDARDS:

1. TM 55-1510-213-10 used.

2. Items checked in sequence.

3. Aircraft suitability for flight correctly determined.

4. Maneuvers, checks, and tasks required for test flight determined.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Perform preflight inspection according to TM 55-1510-213-10. Determine maneuvers or checks necessary for the maintenance test flight. Use additional publications and references as necessary. Brief crew member and any supporting ground crew concerning operations around or on the airplane and ensure ground communication capability is adequate. Stress any applicable safety consideration or procedure during the briefing.

REFERENCES:

AR 95-1
TM 55-1510-213-10
TM 55-1510-213-MTF

TASK NO: TF 9205

TASK: Perform before-starting engines check.

CONDITION: In an OV/RV-1 airplane, before engine starts.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9210

TASK: Perform starting engines check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9211

TASK: Perform before-taxiing checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

TM 55-1510-213-MTF

TASK NO: TF 9212

TASK: Perform aircraft taxiing checks.

CONDITION: In an OV/RV-1 airplane, with before-taxiing checks completed.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9213

TASK: Perform magnetic compass compensation.

CONDITION: In an OV/RV-1 airplane or orally.

STANDARDS:

1. TM 55-1500-204-25/1 used.

2. Compensation requirement identified.

3. DD Form 1613 properly completed.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Using TM 55-1500-204-25/1, determine if compensation is required. Given all necessary figures, complete DD Form 1613 and know how to compensate for each coefficient (A, B, C). After completion of a compensation, correctly determine if compass requires replacement.

REFERENCES:

TM 55-1500-204-25/1
TM 55-1510-213-23 series

TASK NO: TF 9215

TASK: Perform engine run-up checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Related instruments and equipment for normal indications monitored.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9216

TASK: Perform before-takeoff checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9217

TASK: Perform during-takeoff checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. PPC completed.

2. TM 55-1510-213-MTF used.

3. Oral call-out and confirmation method used.

4. Items checked in sequence.

5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Complete the lineup procedures. Release the brakes and smoothly apply takeoff power. Maintain aircraft alignment with runway while manipulating flight controls to correct for the effect of wind. Check for positive control responses during the takeoff roll. During the takeoff, ensure that aircraft engine limitations are not exceeded. Monitor instruments for normal indications. Observer should make required recordings.

REFERENCES:

AR 95-1
TM 55-1510-213-10
TM 55-1510-213-MTF

TASK NO: TF 9219

TASK: Perform after-takeoff checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9220

TASK: Perform during-climb checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: A climb to a minimum of 4000 feet AGL is mandatory for any single-engine checks. Recommended altitude is 8000 feet AGL.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9225

TASK: Perform during-cruise checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: These checks should be accomplished at a minimum of 4000 feet AGL. Recommended altitude is unit mission altitude.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9235

TASK: Perform trim and rigging check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: During cruise in smooth air, adjust trim tab controls to trim out pressure. The aircraft should fly straight and level with hands off. Record tab control position for possible adjustment.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9236

TASK: Perform autopilot/flight director operations.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. Autopilot/flight director system used according to TM 55-1510-213-MTF.

2. System limitations are not exceeded.

DESCRIPTION: Perform manual flight responses to the flight director commands (climbs, descents, turns, and so forth). Engage the autopilot and perform flight maneuvers (climbs, descents, turns, and so forth), using the turn knob and roll-trim control. Engage autopilot and perform/monitor autopilot responses to flight director commands (all modes). Perform coupled navigation and instrument approaches.

REFERENCE:

TM 55-1510-213-MTF

TASK NO: TF 9241

TASK: Perform single-engine check.

CONDITION: In an OV/RV-1 airplane (minimum altitude 4000 AGL).

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION:

1. Engine shutdown in flight will be completed at a minimum altitude of 4000 feet AGL; recommended altitude is 8000 feet AGL. POWER lever will be placed at FLIGHT IDLE, PROP lever at MINIMUM RPM. Aircraft should be in trim to a maximum 1/4-ball width out of trim. Engine should not be shut down if excessive trim must be used. Airspeed should be at or above best single-engine rate-of-climb speed or minimum safe twin-engine operating speed. Engine shutdown will be completed by placing propeller lever to FUEL-OFF to ensure proper overspeed govenor rigging (N1 below 8 percent); then FEATHER. Propeller should be completely feathered and auxiliary motor terminated (noted by amperage on vertical instrument display system). Engine restart should not be attempted until EGT is below 300°C.

2. Engine restart is as follows: A complete check of all switches should be made before attempting start. Normal starting applies, except propeller should be placed in MINIMUM RPM until propeller is unfeathered to preclude an overtorque condition. If engine will not start, attempt air start (see Task 9242). After engine has started, unfeather propeller; ensure airspeed is less than 145 knots. If propeller will not unfeather, go to Task 9243 (emergency unfeather check).

REFERENCE:

TM 55-1510-213-MTF

TASK NO: TF 9242

TASK: Perform air-start check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Simulate inoperative crank switch. Aircraft must be at an altitude where engine can be started before reaching 4000 feet AGL. Place aircraft into shallow dive (out-of-trim condition), placing dead engine into slipstream. As N1 RPM indicates a continuous 8 percent or above, engage ignitors until 40 percent N1 is indicated. As engine starts to accelerate, aircraft can be leveled off to exclude an excessive altitude loss.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9243

TASK: Perform emergency unfeather check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Simulate inoperative unfeather button or auxiliary motor by pulling appropriate PROP CONT circuit breaker on overhead circuit breaker panel. Decrease airspeed to 145 KIAS or below and place prop lever to MINIMUM RPM. Move power lever into reverse range by lifting over cam. Slowly increase N1 by moving power lever to the rear, monitoring N1, torque, and prop RPM. As prop RPM accelerates through 800 RPM and torque is smoothly decreasing with a fixed power lever setting, place power lever into forward thrust range. Match power and prop settings as appropriate. This method is infinitely more indicative of the actual failure. With the published method, the AUX motor would operate and the unfeather operation would be much more rapid than with an actual AUX motor failure.

REFERENCE:

TM 55-1510-213-MTF

TASK NO: TF 9245

TASK: Perform flap operation check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: While at cruise, straight and level at 153 KIAS or below, place flaps in 15° position. Check for abnormal roll characteristics. Check flaps for smoothness and freedom of operation. Place flaps to full DOWN position (45°). Again check for abnormal roll characteristics and check flaps for smoothness and freedom of operation. Check inboard-ailerons response.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9264

TASK: Perform speed board operational check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: During normal cruise, extend speed board. Aircraft should decelerate smoothly with no yawing. Check for proper speed board light indication and priority valve operation. Retract speed boards; aircraft should accelerate with no yawing and pitch down slightly.

REFERENCE:

TM 55-1510-213-MTF

TASK NO: TF 9265

TASK: Perform high-speed dive.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. Heading maintained ±10°.

2. Recovery performed within 200 feet of preselected altitude.

3. Aircraft engine and propeller limitations not exceeded.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: At cruise power, select a target at the 9 o'clock position and roll the aircraft into a steep bank in the direction of the target. The dive angle should be approximately 45° avoiding a zero "G" or negative "G" condition. Accelerate to desired airspeed and maintain constant dive angle by using speed brakes and power. Trim as required in the dive and ensure engine instruments do not exceed limits. Initiate the recovery in time to level off at the desired altitude. A 2.5 to 2.7 "G" pull out should be initiated to check counting accelerometer.

> **NOTE:** Airspeed restriction: 300 KIAS uncontrolled or above 10,000 feet mean sea level; 250 KIAS below 10,000 or in controlled airspace. Use caution when operating above 10,000 feet. Airspeed limit is .65 MACH (OV-1) or .51 MACH (RV-1).

REFERENCES:

AR 95-1
TM 55-1510-213-10
TM 55-1510-213-MTF

TASK NO: TF 9268

TASK: Perform gear extension/retraction check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Items checked in sequence.

3. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Maintain airspeed at less than 153 KIAS. Extension time should be 5 seconds; retraction time, 3 seconds.

REFERENCE:

TM 55-1510-213-MTF

TASK NO: TF 9290

TASK: Perform communication and navigation equipment checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Communication equipment checked.

3. Navigation equipment (ASN 76 and 86 systems) checked.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9291

TASK: Perform descent-arrival check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9292

TASK: Perform before-landing check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9293

TASK: Perform landing check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9295

TASK: Perform after-landing check.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

TASK NO: TF 9298

TASK: Perform special/detailed procedures.

CONDITION: In an OV/RV-1 airplane with equipment installed.

STANDARDS:

1. TM 55-1520-213-MTF with changes used.
2. Additional publications used as required.
3. Oral call-out and confirmation method used.
4. Items checked in sequence.
5. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Check any additional special equipment installed in the aircraft. Demonstrate knowledge of the system and published operational checks. Demonstrate knowledge of published charts, graphs, and work sheets. A complete check of all special/detailed procedures is not required for an evaluation. Selected checks may be performed orally.

REFERENCES:

ARs 95-1 and -3
TM 1-1500-328-25
TM 55-1520-213-10
TM 55-1520-213-CL
TM 55-1520-213-MTF

TASK NO: TF 9299

TASK: Perform engine shutdown checks.

CONDITION: In an OV/RV-1 airplane.

STANDARDS:

1. TM 55-1510-213-MTF used.

2. Oral call-out and confirmation method used.

3. Items checked in sequence.

4. Malfunctions or discrepancies correctly determined and corrective actions/troubleshooting procedures applied.

DESCRIPTION: Not applicable.

REFERENCES:

AR 95-1
TM 55-1510-213-MTF

APPENDIX

SUBSEQUENT MP TRAINING OUTLINE
FLIGHT HOURS RECOMMENDED FOR SUBSEQUENT AIRCRAFT MP TRAINING

TASK	HOURS				
	AH-1	UH-1	OH-58	OH-6	Fixed-Wing
*Flight Planning	2	2.0	2.0	2.0	2
*Flight-Readiness Inspection	1	.5	.5	.5	1
*Before-Starting Checks	2	2.0	2.0	2.0	2
*Systems and Engine Run-Up Checks	2	2.0	2.0	2.0	2
**Baseline and Normal HIT	1	1.0	1.0	1.0	1
Checks					
**Hover Checks	1	1.0	1.0	1.0	1
**In-Flight Test Flight Maneuvers	5	4.5	4.5	4.0	5
*After-Landing Checks	2	2.0	2.0	2.0	2
*Systems and Engine Shutdown Checks	2	2.0	2.0	2.0	2
**Total Flight Time	7	6.5	6.5	6.5	7

*These tasks are not considered to be flight time.

**Hours may be reduced or increased based on demonstrated proficiency to an ME.

ACADEMIC INSTRUCTION FOR SUBSEQUENT AIRCRAFT MP TRAINING

	AH-1	UH-1	OH-58	OH-6	Fixed-Wing
Introduction					
MTF Requirements					
MTF Manual					
Maintenance Readiness Inspection					
MTF Planning					
Before-Starting Checks					
Auxiliary Power Unit					
Power Plant					
Flight Control System					
Hydraulics System					
Fuel System, Airframe/Power Plant					
SAS/Speed Trim/STVA System					
Main Rotor System					
Antitorque System					
Power Train System					
Electrical Systems, AC/DC					
Instruments/Warning Systems					
Tracking/Balancing					

ACADEMIC INSTRUCTION FOR SUBSEQUENT AIRCRAFT MP TRAINING(Cont.)

	AH-1	UH-1	OH-58	OH-6	Fixed-Wing
Utilities Systems					
Landing Gear/Brakes					
Fire Detection/ Extinguishing Systems					
Postflight Inspections					
TEAC Procedures					

GLOSSARY

ACRONYMS AND ABBREVIATIONS

AC	alternating current
ADF	automatic direction finder
ADS	air data sensor
AFCS	automatic flight control system
AGL	above ground level
altr	alternator
AMC	United States Army Materiel Command
APART	annual proficiency and readiness test
APP	auxiliary power plant
APU	auxiliary power unit
AR	Army regulation
ASE	automatic stabilization equipment
ASI	additional skill identifier
ATC	air traffic control
ATHS	airborne target head-off system
ATM	aircrew training manual
ATP	aircrew training program
auto	automatic
AVIM	aviation intermediate maintenance
AVUM	aviation unit maintenance
AVSCOM	United States Army Aviation Systems Command
bara alt	barometer altitude
CG	center of gravity
CPG	copilot/gunner
CPO	copilot/observer
DA	Department of the Army
DASE	digital automatic stabilization equipment
DASH	differential airspeed hold
DC	direct current
DES	Directorate of Evaluation and Standardization (USAAVNC)
DOES	Directorate of Evaluation and Standardization (USAALS)
DTV	day television
ECAS	enhanced Cobra armament system
ECL	engine-condition lever
ECU	environmental control unit (AH-1); electrical control unit (UH-60)
EGT	exhaust gas temperature
EPC	engine performance check
EPR	engine pressure ratio
ETL	effective translational lift
ETM	extension training material

FAC . . . . . flight activity category
FAT . . . . . free-air temperature
FHP . . . . . flying hour program
FLIR . . . . . forward-looking infrared
FM . . . . . field manual
FOI . . . . . fundamentals of instructions
FPM . . . . . feet per minute
FPS . . . . . flight path stabilization
FRB . . . . . fiberglass rotor blade
FW . . . . . fixed wing
FWS . . . . . flight weapons simulator
grd . . . . . ground
HAS . . . . . hover augmentation system
HDG . . . . . heading
Hg . . . . . mercury
HIT . . . . . health indicator test
HQDA . . . . . Headquarters, Department of the Army
IAS . . . . . indicated airspeed
IATF . . . . . individual Aircrew Training Folder
IP . . . . . instructor pilot
ITT . . . . . interstage turbine temperature
KIAS . . . . . knots indicated airspeed
KTAS . . . . . knots true airspeed
KTS . . . . . knots
LCT . . . . . longitudinal cyclic trim
LTE . . . . . loss of tail rotor effectiveness
M/C . . . . . modernized Cobra
ME . . . . . maintenance test flight evaluator
MFD . . . . . multifunctional display
MM/MTPC . . . . . Maintenance Manager/Maintenance Test Pilot Course
MMS . . . . . mast-mounted sight
MOC . . . . . maintenance operational check
MOD . . . . . modified
MOI . . . . . method of instruction
MOS . . . . . military occupational specialty
MP . . . . . maintenance test pilot
MPPC . . . . . maximum power performance check
MRB . . . . . metal rotor blade
MSL . . . . . mean sea level
MTF . . . . . maintenance test flight
MWO . . . . . modification work order
N1 . . . . . gas-turbine speed
N2 . . . . . power-turbine speed (UH-1, AH-1, OH-58)
NA . . . . . not applicable
NG . . . . . National Guard
Ng . . . . . gas produced RPM
Np . . . . . power turbine RPM

Nr . . . . . rotor RPM
OAT . . . . . outside-air temperature
PA . . . . . pressure altitude
PPC . . . . . performance planning card
PROD . . . . . production
PSAS . . . . . pitch stabilization augmentation system
psi . . . . . pounds per square inch
PTIT . . . . . power turbine inlet temperature
rad alt . . . . . radar altimeter
RL . . . . . readiness level
RPM . . . . . revolutions per minute
RPMR . . . . . revolutions per minute rotor
RRPM . . . . . rotor revolutions per minute
RW . . . . . rotary wing
SAS . . . . . stability augmentation system
SCAS . . . . . stability and control augmentation system
SP . . . . . standardization instructor pilot
SQI . . . . . special qualification identifier
STVA . . . . . self-tuning vibration absorber
TADS . . . . . target acquisition and designation system
TAS . . . . . true airspeed
TDA . . . . . table(s) of distribution and allowances
TEAC . . . . . turbine engine analysis check
TF . . . . . test flight
TGT . . . . . turbine gas temperature
TOE . . . . . table(s) of organization and equipment
TOT . . . . . turbine outlet temperature
TRADOC . . . . . United States Army Training and Doctrine Command
USAALS . . . . . United States Army Aviation Logistics School
USAAVNC . . . . . United States Army Aviation Center
USAR . . . . . United States Army Reserve
UTM . . . . . universal transverse Mercator
VG . . . . . vertical gyro
VGI . . . . . vertical-gyro indicator
Vh . . . . . maximum horizontal speed
VIDS . . . . . vertical instrument display system
VMC . . . . . visual meteorological conditions
VMO . . . . . maximum operating-limit speed
VNE . . . . . velocity not to exceed
VSD . . . . . vertical situation display
VSSE . . . . . minimum safe single-engine operating speed
VWS . . . . . voice warning system
VYSE . . . . . best single-engine rate-of-climb speed
WAS . . . . . weapons action switch (either select or switch)

REFERENCES

REQUIRED PUBLICATIONS

Required publications are sources that users must read in order to understand or to comply with this publication.

ARMY REGULATIONS (ARs):

95-1	Army Aviation Flight Regulations
95-3	Aviation: General Provisions, Training, Standardization, and Resource Management

DEPARTMENT OF THE ARMY PAMPHLET (DA Pam):

738-751	Functional Users Manual for the Army Maintenance Management Sysem, Aviation (TAMMS-A)

FIELD MANUALS (FMs):

1-203	Fundamentals of Flight
1-301	Aeromedical Training for Flight Personnel

TECHNICAL MANUALS (TMs):

1-1500-328-25	Aeronautical Equipment Maintenance Management Policies and Procedures
9-1090-208-23-1	Aviation Unit and Intermediate Manual for Armament Subsystem, Helicopter, M130; Gun, Automatic, 3-MM, M230; Rocket Management Subsystem, Inventory Deployment, M140 (Used on AH-64A Helicopter
9-1090-208-23-2	Aviation Unit and Intermediate Troubleshooting Manual for Armament Subsystem, Helicopters, M139; Gun, Automatic, 30-MM, M230 Rocket Management Subsystem, Inventory Deployment: M140
9-1090-208-23P	Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Armament Subsystem, Helicopter: M139; Gun, Automatic, 30-MM: M230 and Rocket Management Subsystem, Inventory Deployment: M140 (Used on AH-64A Helicopter)
9-1230-476-20-1	Aviation Unit Maintenance Manual for AH-64 Helicopter, Fire Control System
9-1230-476-20-2	Aviation Unit Troubleshooting Manual for Army AH-64 Helicopter, Fire Control System
9-1230-476-23P	Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for AH-64A Helicopter Fire Control System Fire Control Computer and Data Processor
9-1230-476-30	Aviation Intermediate Maintenance Manual for AH-64A Helicopter, Fire Control System
9-1240-778-20	Aviation Unit Maintenance (AVUM) Mast Mounted Sight Subsystem (MMSS)

9-1240-778-20	Aviation Unit Maintenance (AVUM) Mast Mounted Sight Subsystem (MMSS)
9-1240-778-30	Aviation Intermediate Maintenance (AVIM) Mast Mounted Sight System (MMSS)
9-1270-476-20-1	Aviation Unit Maintenance Manual for Target Acquisition Designation Sight (TADS) Assembly, AN/ASQ-170 (AH-64A Attack Helicopter)
9-1270-476-20-2	Aviation Unit Maintenance Manual for Target Acquisition Designation Sight Assembly, AN/ASQ 170 (AH-64A Attack Helicopter)
9-1270-476-23P	Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Target Acquisition Designation Sight (TADS) Assembly, AN/ASQ 170 (AH-64A Attack Helicopter)
9-1427-779-30	Aviation Unit Maintenance Control/Display Subsystem (CDS)
9-4935-780-13	Operator, Aviation Unit and Intermediate Maintenance Manual for Test Support System AN/TSM-173 (TSS
11-1520-221-20	Organizational Maintenance Manual for Electronic Equipment Configurations, Army Models AH-1G, AH-10, and AH-1S MOD Helicopters
11-1520-236-20P	Organizational Maintenance Repair Parts and Special Tools Lists for Electronic Equipment Configurations, Army Model AH-1S Helicopter Production (Less Stability Control Augmentation System (SCAS))
11-1520-237-23-1	Aviation Unit and Intermediate Maintenance: Avionics General Information Manual EH-60A and UH-60A Helicopters
11-1520-237-23-2	Aviation Unit and Intermediate Maintenance, Avionics Fault Isolation Procedures Manual: UH-60A Helicopter and EH-60A Helicopter
11-1520-237-23-3	Aviation Unit and Intermediate Maintenance Avionics Maintenance Task Manual: EH-60A Helicopter and UH-60A Helicopter
11-1520-238-23-1	Aviation Unit and Intermediate Maintenance Manual for Army Model AH-64A Helicopter Avionics Configuration
11-1520-238-23-2	Aviation Unit and Intermediate Troubleshooting Manual for Army Model AH-64A Helicopter, Avionics Configuration
11-1520-248-23	Aviation Unit and Intermediate Maintenance Manual, Army Model OH-58D Helicopter
11-5895-1184-23	Aviation Unit and Intermediate Maintenance Manual for Symbol Generator, MX 10465/ASQ
55-1510-200-MTF	Maintenance Test Flight Manual: For Army Model U-21A, U-21G, RU-21A, RU-21B, RU-21C, RU-21D, RU-21H, and JU-21
55-1510-209-10	Operator's Manual: Army Model U-21A Aircraft
55-1510-209-10-1	Operator's Manual for Army RU-21A and RU-21D Aircraft
55-1510-209-CL	Operator's and Crewmembers' Checklist: Army Model U-21A Aircraft
55-1510-209-CL-1	Operator's and Crewmembers' Checklist: Army Models RU-21A and RU-21D Aircraft

55-1510-209-23-1 and -2	Aviation Unit and Aviation Intermediate Maintenance Manual for: Army Models U-21A, RU-21A, and RU-21D
55-1510-213-10	Operator's Manual: OV-1D/RV-1D Aircraft
55-1510-213-MTF	Maintenance Test Flight Manual: For Army Model OV-1D, Airplane, Observation and RV-1D, Airplane, Reconnaissance
55-1510-214-10	Operator's Manual: Army Models RU-21B and RU-21C Aircraft
55-1510-214-23	Aviation Unit and Aviation Intermediate Maintenance Manual: Army Models RU-21B and RU-21C
55-1510-214-CL	Operator's and Crewmembers' Checklist: Army Models RU-21B and RU-21C Aircraft
55-1510-215-10	Operator's Manual: Army Model U-21G Aircraft
55-1510-215-10-2	Operator's Manual for Army Model RU-21H Aircraft
55-1510-215-23-1 and -2	Aviation Unit and Aviation Intermediate Maintenance Manual: Army Models U-21G, RU-21E and RU-21H (GR-V)
55-1510-215-CL	Operator's and Crewmembers' Checklist: Army Model U-21G Aircraft
55-1510-215-CL-2	Operator's and Crewmembers' Checklist: Army Model RU-21H Aircraft Pilots Checklist
55-1510-218-10	Operator's Manual: Army Models C-12A, C-12C, C-12D, and C-12F Aircraft
55-1510-218-CL	Operator's and Crewmember's Checklist for Army Model C-12A/C/D; Pilot's Checklist
55-1510-218-MTF	Maintenance Test Flight Manual for Army Model C-12C, C-12D, and C-12F Aircraft
55-1520-210-10	Operator's Manual for UH-1H/V Helicopters
55-1520-210-23-1	Aviation Unit and Intermediate Maintenance Instructions: Army Model UH-1H/V/EH-1H/X 55-1520-210-23-2 Aviation Unit and Intermediate Maintenance Instructions: Army Model UH-1/V/EH-1H/X Helicopters
55-1520-210-23-3	Aviation Unit and Intermediate Maintenance Instructions for Army Model UH-1H/H/V/EH-1H Helicopters
55-1520-210-CL	Operator's and Crewmember's Checklist: Army Model UH-1H/V Helicopter
55-1520-214-10	Operator's Manual: Helicopter, Observation OH-6A
55-1520-214-23	Aviation Unit and Intermediate Maintenance Manual: Helicopter, Observation OH-6A
55-1520-214-CL	Operator's and Crewmember's Checklist: Army Model OH-6A Aircraft
55-1520-214-MTF	Maintenance Test Flight Manual for OH-6A Helicopter
55-1520-217-10-1 and -2	Operator's Manual: Army Model CH-54A/B Helicopters
55-1520-217-23	Aviation Unit and Intermediate Maintenance series Manual: CH-54A/B Helicopters

55-1520-217-CL-1 and -2	Operator's and Crewmembers' Checklist: Army model CH-54A/B Helicopters
55-1520-217-MTF-1 and -2	Maintenance Test Flight Manual for Army Model CH-54A/B Helicopters
55-1520-220-10	Operator's Manual: Army Model UH-1C/M Helicopter
55-1520-220-23-1 thru -3	Aviation Unit and Intermediate Maintenance Instructions: Army Model UH-1C/M Helicopters
55-1520-220-CL	Operator's and Crewmember's Checklist: Army Model UH-1C/M Helicopter, Pilot's Checklist
55-1520-227-10-2	Operator's Manual: Army Model CH-47C Helicopter
55-1520-227-23-1 thru -5	Aviation Unit and Aviation Intermediate Maintenance Manual, Army Model CH-47B and CH-47C Helicopters
55-1520-227-CL-2	Operator's and Crewmember's Checklist: Army Model CH-47C Helicopter; Pilot's Checklist
55-1520-228-10	Operator's Manual: Army Model OH-58A Helicopter
55-1520-228-23-1 and -2	Aviation Unit and Intermediate MaintenanceManual for Army Model OH-58A and OH-58C Helicopters
55-1520-228-CL	Operator's and Crewmember's Checklist: Army Model OH-58A/C Helicopter
55-1520-228-MTF	Maintenance Test Flight Manual for Army Model OH-58A and OH-58C Helicopter
55-1520-234-10	Operator's Manual: Army Model AH-1S (MOD) Helicopter
55-1520-234-23-1 and -2	Aviation Unit and Aviation Intermediate Maintenance Manual Helicopter, Attack AH-1S (MOD)
55-1520-234-CL	Operator's and Crewmember's Checklist: Army Model AH-1S (MOD) Helicopter
55-1520-236-10	Operator's Manual, Army Model AH-1P (PROD), AH-1E (ECAS), and AH-1F (Modernized Cobra) Helicopters
55-1520-236-23-1 thru -4	Aviation Unit and Intermediate Maintenance Manual: Army Models AH-1S (PROD), AH-1S (ECAS), and AH-1S (Modernized Cobra) Helicopters
55-1520-236-CL	Operator and Crewmember Checklist: Army Model AH-1P (PROD), AH-1E (ECAS), and AH-1F (Modernized Cobra) Helicopters
55-1520-236-MTF	Maintenance Test Flight Manual for Army Model AH-1P/E/F Helicopter
55-1520-237-10	Operator's Manual: UH-60A and EH-60A Helicopters
55-1520-237-23-1	Aviation Unit and Intermediate Maintenance Wiring Data Manual for UH-60A/EH-60A Helicopters
55-1520-237-23-2	Aviation Unit and Aviation Intermediate Maintenance Manual Aircraft General Information Manual UH-60A and EH-60A Helicopter
55-1520-237-23-3	Aviation Unit and Intermediate Maintenance: Aircraft Fault Isolation Procedures Manual, UH-60A Helicopter

55-1520-237-23-4	Aviation Unit and Intermediate Maintenance Servicing, Ground Handling, AirTransportability, and General Maintenance Task Manual, UH-60A and EH-60A Helicopters
55-1520-237-23-5	Aviation Unit and Intermediate Maintenance Airframe and Landing Gear Maintenance Task Manual, UH-60A and EH-60A Helicopters
55-1520-237-23-6	Aviation Unit and Intermediate Maintenance Powerplant, Fuel, and Related Systems Maintenance Task Manual: UH-60A and EH-60A Helicopters
55-1520-237-23-7	Aviation Unit and Intermediate Maintenance Powertrain Maintenance Task Manual, UH-60A, EH-60A Helicopter
55-1520-237-23-8	Aviation Unit and Intermediate Maintenance for Hydraulics and Flight Controls Maintenance Task Manual, UH-60A and EH-60A Helicopter
55-1520-237-23-9	Aviation Unit and Intermediate Maintenance Electrical and Instruments Maintenance Task Manual UH-60A and EH-60A Helicopters
55-1520-237-23-10	Aviation Unit and Intermediate Maintenance Structural Repair Maintenance Task Manual: UH-60A/EH-60A Helicopter
55-1520-237-CL	Operator's and Crewmember's Checklist, UH-60A/EH-60A Helicopter
55-1520-237-MTF	Maintenance Test Flight Manual: UH-60A, EH-60A Helicopters
55-1520-238-10	Operator's Manual for Army Model AH-64 Helicopter
55-1520-238-23-1 thru -8	Aviation Unit and Aviation Intermediate Maintenance Manual for Army AH-64A Helicopter
55-1520-238-CL	Operator's Checklist for Army Model AH-64A Helicopter
55-1520-238-MTF	Maintenance Test Flight Manual for Army Model AH-64A Helicopter
55-1520-238-PMS	AH-64 Helicopter, 10 Hour/14 Day Inspection Checklist
55-1520-238-T	Aviation Unit and Intermediate Troubleshooting Manual for Army Model AH-64A Helicopter; Vol 1
55-1520-240-10	Operator's Manual for CH-47D Helicopter
55-1520-240-23-1 thru -10	Aviation Unit and Aviation Intermediate Maintenance Manual: CH-47D Helicopters
55-1520-240-CL	Operator's and Crewmember's Checklist Army Model CH-47D Helicopter 55-1520-240-MTF Maintenance Test Flight Manual: For Army Model CH-47D Helicopter
55-1520-240-T-1 thru -3	Aviation Unit and Aviation Intermediate Troubleshooting Manual: CH-47D Helicopter 55-1520-241-MTF Maintenance Test Flight Manual: Army Model CH-47A, B, C Helicopter
55-1520-242-MTF	Maintenance Test Flight Manual for Army Model UH-1 and EH-1 Helicopters
55-1520-242-S	Preparation for Shipment of UH-1/EH-1 Helicopters
55-1520-244-MTF	Maintenance Test Flight Manual for Army Model AH-1G, TH-1G, AH-1S (MOD) Helicopters
55-1520-248-10	Operator's Manual for Army OH-58D Helicopter

55-1520-248-23-1 thru -5	Aviation Unit and Intermediate Maintenance Manual for Army Model OH-58D Helicopter
55-1520-248-CL	Operators and Crewmembers Checklist, Army OH-58D Helicopter
55-1520-248-MTF	Maintenance Test Flight Manual for Army Model OH-58D Helicopter
55-2840-229-23-1 and -2	Aviation Unit and Intermediate Maintenance Manual for Engine Assembly, Model T53-L-11C, Part No. 1-000-080-12; Model T53-L-11D, Part No. 1-000-080-13; Model T53-L-13B, Part No. 1-000-060-10, and Model T53-L-703, Part No. 1-000-060-23
55-2840-231-23	Aviation Unit and Aviation Intermediate Maintenance Manual for Engine Assemblies, Models T63-A-5A and T63-A-700
55-2840-248-23	Aviation Unit and Intermediate Maintenance Manual for Engine, Aircraft, Turboshaft, Model T700-GE-700 and T700-GE-701
55-2840-254-23-1 thru -4	Aviation Unit and Aviation Intermediate Maintenance Manual for Engine, Gas Turbine, Model T55-L-712
55-2840-256-23	Aviation Unit and Aviation Intermediate Maintenance, Engine Aircraft, Turboshaft

TRAINING CIRCULARS (TCs):

1-209	Aircrew Training Manual OH-58D Observation Helicopter, Aviator/Aeroscout Observer
1-210	Aircrew Training Program Commanders Guide
1-211	Aircrew Training Manual/UH-1, Utility Helicopter
1-212	Aircrew Training Manual/Utility Helicopter, UH-60
1-216	Aircrew Training Manual/Cargo Helicopter

RELATED PUBLICATIONS

Related publications are sources of additional information. They are not required in order to understand this publication.

ARMY REGULATION (AR):

40-8	Temporary Flying Restrictions Due to Exogenous Factors

DEPARTMENT OF THE ARMY PAMPHLET (DA Pam):

25-30	Consolidated Index of Army Publications and Blank Forms

MODIFICATION WORK ORDER (MWO):

55-1520-228-50-25	Improved Tail Rotor Configuration

TECHNICAL MANUAL (TM):

55-1500-204-25/1	General Aircraft Maintenance Manual

OTHER PUBLICATIONS

The following forms are cited in this publication:

DEPARTMENT OF THE ARMY (DA) FORMS:

2028	Recommended Changes to Publications and Blank Forms
2408-13	Aircraft Inspection and Maintenance Record
4507-R	Standard Evaluation/Training Grade Slip
4507-2-R	Continuation Comment Slip
5051-R	Maintenance Test Flight Personnel Training Record (LRA)
5051-1-R	Maintenance Test Flight Maneuvers Grade Slip (OH-58) (LRA)
5051-2-R	Maintenance Test Flight Maneuvers Grade Slip (OH-58) (LRA)
5051-3-R	Maintenance Test Flight Maneuvers Grade Slip (UH-60) (LRA)
5051-4-R	Maintenance Test Flight Maneuvers Grade Slip (AH-1) (LRA)
5051-5-R	Maintenance Test Flight Maneuvers Grade Slip (CH-47) (LRA)
5051-6-R	Maintenance Test Flight Maneuvers Grade Slip (U-21) (LRA)
5051-7-R	Maintenance Test Flight Maneuvers GradeSlip (OH-6) (LRA)
5051-8-R	Maintenance Test Flight Maneuvers Grade Slip (C-12) (LRA)
5051-9-R	Maintenance Test Flight Maneuvers Grade Slip (CH-54) (LRA)
5051-10-R	Maintenance Test Flight Maneuvers Grade Slip (OV-RV-1) (LRA)
5051-11-R	Maintenance Test Flight Maneuvers Grade Slip (AH-64) (LRA)
5051-12-R	Maintenance Test Flight Maneuvers GradeSlip (OH-58D) (LRA)

PROJECTED PUBLICATIONS

Projected publications are sources of additional information that are scheduled for printing but are not yet available. Upon print, they will be distributed automatically via pinpoint distribution. They may not be obtained from the USA AG Publication Center until indexed in DA Pamphlet 25-30.

TRAINING CIRCULARS (TCs):

1-213	Aircrew Training Manual: Attack Helicopter, AH-1
1-214	Aircrew Training Manual: Attack Helicopter, AH-64
1-215	Aircrew Training Manual: Observation Helicopter
1-217	Aircrew Training Manual: Surveillance Airplane, OV-1
1-218	Aircrew Training Manual: Utility Airplane

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MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OH-58A/C)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINE CHECKS	
3	STARTING ENGINE CHECKS	
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17	AUTOROTATION RPM CHECK	
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19	HYDRAULICS-OFF CHECK	
20	VIBRATION ANALYSIS DURING INCREASING AIRSPEED	
21	70-KIAS - 15-PSI (OH-58A) OR 12-PERCENT (OH-58C) DESCENT	
22	2:1 VERTICAL VIBRATION CHECK	
23	FLIGHT INSTRUMENTS CHECK	
24	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
25	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
26	SPECIAL PROCEDURES	
27	ORAL EVALUATION	
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NOTE ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

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MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OH-58D)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINE CHECKS	
3	STARTING ENGINE CHECKS	
4	ENGINE RUN-UP PILOT CHECKS	
5	SYSTEMS CHECKS	
6	BEFORE-TAKEOFF CHECKS	
7	TAKEOFF TO A HOVER	
8	HOVER POWER CHECK	
9	HOVERING TURNS	
10	SIDEWARD FLIGHT	
11	FORWARD FLIGHT TO ETL	
12	MAGNETIC COMPASS COMPENSATION	
13	GYRO COMPASS CALIBRATION	
14	SCAS CHECK	
15	HEADING HOLD CHECK	
16	POWER CYLINDER CHECK	
17	ENGINE RESPONSE CHECK	
18	HOVER/HOVER BOB-UP CHECK	
19	TAKEOFF AND CLIMB CHECK	
20	CONTROL RIGGING CHECK	
21	AUTOROTATION RPM CHECK	
22	HYDRAULICS OFF CHECK	
23	COLLECTIVE ANTICIPATOR CHECK	
24	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	
25	1/REV VERTICAL VIBRATION LETDOWN CHECK	
26	4/REV VERTICAL VIBRATION CHECK	
27	ROTOR DYNAMIC BALANCE PROCEDURES	
28	FLIGHT INSTRUMENTS CHECK	
29	COMMUNICATION CHECK	
30	NAVIGATION SYSTEM CHECK	
31	ATHS OPERATIONAL CHECK	
32	MMS OPERATIONAL DIAGNOSTICS CHECKS	
33	AIRBORNE CALIBRATION PROCEDURE	
34	BEFORE-LANDING CHECK	
35	AFTER-LANDING CHECK	
36	ENGINE SHUTDOWN CHECK	
37	SPECIAL PROCEDURES	
38	ORAL EVALUATION	
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NOTE ITEMS 39 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-12-R, JUL 90

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OH-6)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINE CHECKS	
3	STARTING ENGINE CHECKS	
4	ENGINE RUN-UP CHECKS	
5	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
6	BEFORE-TAKEOFF CHECKS	
7	TAKEOFF TO A HOVER	
8	HOVER POWER CHECK	
9	HOVERING TURNS	
10	SIDEWARD FLIGHT	
11	FORWARD-HOVERING FLIGHT	
12	ENGINE RESPONSE CHECK	
13	LOW-RPM HOVER	
14	MAGNETIC COMPASS COMPENSATION	
15	CONTROL-RIGGING CHECK	
16	AUTOROTATION RPM CHECK	
17	ENGINE PERFORMANCE CHECK (EPC)	
18	VIBRATION ANALYSIS (WITHOUT VIBREX)	
19	COLLECTIVE BUNGEE CHECK	
20	FLIGHT INSTRUMENTS CHECK	
21	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
22	BEFORE-LANDING CHECKS	
23	AFTER-LANDING CHECKS	
24	ENGINE-OUT/REIGNITION CHECK	
25	ENGINE SHUTDOWN CHECKS	
26	SPECIAL PROCEDURES	
27	ORAL EVALUATION	
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NOTE ITEMS 28 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-7-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (UH-1)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINE CHECKS	
3	STARTING ENGINE CHECKS	
4	ENGINE RUN-UP CHECKS	
5	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
6	TAKEOFF TO A HOVER	
7	HOVERING TURNS	
8	SIDEWARD FLIGHT	
9	FORWARD-HOVERING FLIGHT	
10	PYLON MOUNT CHECK	
11	TORQUEMETER/POWER CHECK	
12	ENGINE RESPONSE CHECK	
13	POWER CYLINDER CHECK	
14	LOW-RPM HOVER	
15	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	
16	MAGNETIC COMPASS COMPENSATION	
17	TAKEOFF AND CLIMB-OUT CHECKS	
18	LEVEL-OFF CHECK	
19	CONTROL-RIGGING CHECK	
20	AUTOROTATION RPM CHECK	
21	HYDRAULICS-OFF CHECK (UH-1E, H, AND V ONLY)	
22	ENGINE-TOPPING CHECK	
23	STABILIZER BAR CHECK	
24	VIBRATION ANALYSIS DURING INCREASING AIRSPEEDS	
25	70-KIAS, 10-PSI DESCENT	
26	CYCLIC-RIGGING CHECK	
27	FLIGHT INSTRUMENTS CHECK	
28	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
29	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
30	SPECIAL PROCEDURES	
31	ORAL EVALUATION	
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NOTE ITEMS 32 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (UH-60)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	INTERIOR CHECKS	
3	BEFORE-STARTING ENGINE CHECKS	
4	STARTING ENGINE CHECKS	
5	ECU LOCKOUT/Np OVERSPEED CHECK	
6	ACCELERATION/DECELERATION CHECK	
7	ELECTRICAL SYSTEMS CHECKS	
8	BASELINE AND ENGINE HEALTH INDICATOR TEST (HIT)/ANTI-ICE	
9	BEFORE-TAKEOFF CHECK	
10	GROUND TAXI	
11	HOVER CONTROLLABILITY CHECK	
12	SAS CHECK	
13	FPS CHECK	
14	TAIL ROTOR SERVO CHECK	
15	GENERATOR UNDER-FREQUENCY DISABLE/LOW ROTOR RPM CHECK	
16	COMPASS TURN RATE VERTICAL GYRO CHECK	
17	MAGNETIC COMPASS COMPENSATION	
18	TAKEOFF/CLIMB CHECK	
19	AUTOROTATION RPM CHECKS	
20	IN-FLIGHT CONTROLLABILITY CHECKS	
21	MAXIMUM POWER CHECK	
22	STABILATOR CHECK AT 120 KIAS	
23	FPS/SAS CHECKS DURING FLIGHT	
24	Vh CHECK	
25	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
26	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
27	SPECIAL PROCEDURES	
28	ORAL EVALUATION	
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DA FORM 5051-3-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (AH-1)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	INTERIOR CHECKS	
3	BEFORE-STARTING ENGINE CHECKS	
4	STARTING ENGINE CHECKS	
5	ENGINE RUN-UP CHECKS	
6	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
7	BEFORE TAKEOFF CHECK	
8	TAKEOFF TO A HOVER	
9	TORQUEMETER CHECK	
10	MAGNETIC COMPASS COMPENSATION	
11	YAW CHANNEL RESPONSE	
12	PEDAL AUTHORITY CHECK	
13	SIDEWARD-HOVERING FLIGHT	
14	FORWARD-HOVERING FLIGHT	
15	PYLON MOUNTS CHECK SCAS ON	
16	PYLON MOUNTS CHECK SCAS OFF	
17	ENGINE RESPONSE CHECK	
18	LOW-RPM HOVER	
19	MANUAL THROTTLE OPERATIONS, EMERGENCY GOVERNOR MODE	
20	POWER CYLINDER CHECK, DUAL SYSTEM CHECK	
21	POWER CYLINDER CHECK, HYDRAULICS #1 SYSTEM CHECK	
22	POWER CYLINDER CHECK, HYDRAULICS #2 SYSTEM CHECK	
23	COLLECTIVE SERVO AUTHORITY CHECK, #1 SYSTEM CHECK	
24	COLLECTIVE SERVO AUTHORITY CHECK, #2 SYSTEM CHECK	
25	TAKEOFF AND CLIMB-OUT CHECKS	
26	CONTROL-RIGGING CHECK SCAS ON	
27	CONTROL-RIGGING CHECK SCAS OFF	
28	AUTOROTATION RPM CHECK	
29	FLIGHT INSTRUMENTS CHECK	
30	CRUISE AND DESCENT CHECK	
31	ACCELERATION CHECK	
32	"G" LOADING CHECK	
33	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
34	ENGINE-TOPPING CHECK	
35	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
36	SPECIAL PROCEDURES	
37	ORAL EVALUATION	
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NOTE ITEMS 38 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-4-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (AH-64)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	INTERIOR CHECK: PILOT AND COPILOT/GUNNER STATION	
3	BEFORE-STARTING APU CHECKS	
4	STARTING APU CHECKS	
5	AFTER-STARTING APU CHECKS	
6	STARTING ENGINE CHECKS	
7	ENGINE RUN-UP CHECKS	
8	BEFORE-TAXI CHECKS	
9	TAXI CHECKS	
10	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
11	BEFORE-HOVER/TAKEOFF CHECKS	
12	HOVER CHECKS	
13	HOVER MANEUVERING CHECKS	
14	DASE/HAS CHECKS	
15	VISIONIC SYSTEMS CHECK	
16	DOPPLER DRIFT CHECK	
17	MAGNETIC COMPASS / HSI COMPENSATION	
18	INITIAL TAKEOFF CHECK	
19	CRUISE FLIGHT CHECKS	
20	AUTOROTATION RPM CHECK	
21	ATTITUDE-HOLD CHECK	
22	STABILATOR CHECK	
23	MANEUVERING FLIGHT CHECKS	
24	Vh CHECK	
25	ENGINE PERFORMANCE CHECK-MINIMUM TORQUE	
26	TGT LIMITER SETTING/CONTINGENCY POWER CHECK	
27	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
28	WEAPONS SYSTEMS CHECK	
29	SPECIAL PROCEDURES	
30	ENGINE SHUTDOWN CHECK	
31	ORAL EVALUATION	
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NOTE ITEMS 32 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (CH-47)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a NO.	b MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINE CHECKS	
3	LONGITUDINAL CYCLIC TRIM (LCT) MANUAL OPERATION CHECK	
4	STARTING ENGINE CHECKS	
5	ENGINE RUN-UP CHECKS	
6	BASELINE AND NORMAL ENGINE HEALTH INDICATOR TEST (HIT)	
7	BEFORE-TAKEOFF CHECK	
8	LIFT-OFF CHECK	
9	ENGAGEMENT ERROR CHECK	
10	SAS-FUNCTION CHECK (C MODEL)	
11	AFCS-FUNCTION CHECK (D MODEL)	
12	PITCH STABILITY AUGMENTATION SYSTEM CHECK (C MODEL)	
13	CONTROL POSITION CHECK	
14	TORQUE DIFFERENTIAL CHECK	
15	DROOP ELIMINATOR CHECK	
16	SPEED SWEEP CHECKS	
17	LCT LIFT-OFF CHECK	
18	PSAS EVALUATION (C MODEL)	
19	SAS EVALUATION (C MODEL)	
20	AFCS EVALUATION (D MODEL)	
21	SELF-TUNED VIBRATION ABSORBER (STVA) EVALUATION	
22	ROTOR RPM DROOP & THRUST ROD SLIPPAGE CHECK (D MODEL)	
23	TEAC	
24	AUTOROTATION RPM CHECK	
25	NAVIGATION AND COMMUNICATION EQUIPMENT CHECKS	
26	AFTER-LANDING CHECKS	
27	SPECIAL PROCEDURES	
28	ENGINE SHUTDOWN CHECKS	
29	ORAL EVALUATION	
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NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-5-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (CH-54)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	COCKPIT CHECKS BEFORE STARTING APP	
3	APP START	
4	ELECTRICAL SYSTEMS AND ROTOR BRAKE CHECKS	
5	FLIGHT CONTROLS AND AFCS-SERVO CHECKS (CH-54B)	
6	AFT PILOT CONTROLS AND ROTOR BRAKE CHECKS (CH-54B)	
7	FIRE WARNING AND FUEL SYSTEMS CHECKS	
8	CARGO SYSTEMS CHECK	
9	ENGINE START AND RUN-UP CHECKS	
10	AFCS AND FLIGHT CONTROL CHECKS	
11	AFT PILOT CONTROL CHECKS	
12	ROTOR ENGAGEMENT AND NO. 2 ENGINE START	
13	AFTER-STARTING ENGINE CHECKS ON CH-54A	
14	AFTER-STARTING ENGINE CHECKS ON CH-54B	
15	BEFORE-TAKEOFF CHECKS	
16	MAGNETIC COMPASS COMPENSATION	
17	LIFT-OFF AND HOVER STABILITY CHECKS	
18	AFCS-SERVO AND FLIGHT CONTROL HYDRAULIC SYSTEM CHECKS	
19	REMOTE STICK OPERATION	
20	ENGINE TORQUE MATCHING CHECK	
21	GENERATOR DROPOUT AND SINGLE-ENGINE HOVER CHECKS	
22	CRUISE CHECKS	
23	AUTOROTATION CHECK	
24	FLIGHT STABILITY CHECK	
25	FUEL SYSTEM CROSSFEED CHECKS	
26	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
27	HOIST OPERATION	
28	AFTER-LANDING AND ENGINE SHUTDOWN CHECKS	
29	SPECIAL PROCEDURES	
30	ORAL EVALUATION	
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NOTE ITEMS 31 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-9-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (U-21)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINES CHECK	
3	ENGINE START CHECK	
4	AIRCRAFT TAXI	
5	MAGNETIC COMPASS COMPENSATION	
6	ENGINE RUN-UP CHECK	
7	BEFORE-TAKEOFF CHECKS	
8	DURING-TAKEOFF CHECKS	
9	AFTER-TAKEOFF CHECKS	
10	DURING-CLIMB CHECKS	
11	DURING-CRUISE CHECKS	
12	SPEED-POWER CHECK	
13	TRIM AND RIGGING CHECK	
14	STALL, WARNING, SPEED, AND CHARACTERISTIC CHECKS	
15	FLAP OPERATION CHECK	
16	MANUAL PROPELLER FEATHERING AND UNFEATHERING CHECK	
17	PROPELLER AUTOFEATHERING SYSTEM CHECK	
18	ENGINE PERFORMANCE CHECK (EXCEPT RU-21B,C)	
19	MAXIMUM RATE-OF-DESCENT CHECK	
20	LANDING GEAR WARNING HORN AND SILENCE BUTTON CHECK	
21	EMERGENCY LANDING GEAR EXTENSION SYSTEM CHECK	
22	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
23	DESCENT-ARRIVAL CHECK	
24	BEFORE-LANDING CHECK	
25	LANDING CHECK	
26	AFTER-LANDING CHECK	
27	SPECIAL PROCEDURES	
28	ENGINE SHUTDOWN CHECKS	
29	ORAL EVALUATION	
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NOTE ITEMS 30 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-6-R, JUL 90 EDITION OF JUN 86 OBSOLETE

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (C-12)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINE CHECKS	
3	ENGINE START CHECKS	
4	BEFORE-TAXIING CHECK	
5	AIRCRAFT TAXIING CHECK	
6	MAGNETIC COMPASS COMPENSATION	
7	ENGINE RUN-UP CHECKS	
8	BEFORE-TAKEOFF CHECKS	
9	DURING-TAKEOFF CHECKS	
10	AFTER-TAKEOFF CHECKS	
11	DURING-CLIMB CHECKS	
12	PRESSURIZATION SYSTEM CHECK	
13	DURING-CRUISE CHECKS	
14	SPEED CHECK AT MAXIMUM CRUISE POWER	
15	MAXIMUM POWER-LEVER POSITION CHECK	
16	ENGINE ACCEPTANACE CHECK	
17	ENGINE ICE VANES CHECK	
18	TRIM AND RIGGING CHECK	
19	AUTOPILOT CHECK	
20	STALL, WARNING, SPEED, AND CHARACTERISTIC CHECKS	
21	FLAP OPERATION CHECK	
22	MINIMUM ELEVATOR TRIM CHECK	
23	AUTOIGNITION CHECK	
24	MANUAL PROPELLER FEATHERING AND UNFEATHERING CHECK	
25	PROPELLER AUTOFEATHERING SYSTEM CHECK	
26	MAXIMUM RATE-OF-DESCENT CHECK	
27	LANDING GEAR WARNING HORN AND OPERATION CHECK	
28	EMERGENCY LANDING GEAR EXTENSION SYSTEM CHECK	
29	ELEVATOR TRIM CHECK	
30	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
31	DESCENT CHECK	
32	BEFORE LANDING CHECK	
33	LANDING CHECK	
34	AFTER-LANDING CHECK	
35	SPECIAL PROCEDURES	
36	ENGINE SHUTDOWN CHECKS	
37	ORAL EVALUATION	
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NOTE ITEMS 38 THROUGH 40 INTENTIONALLY LEFT BLANK FOR LATER USE

DA FORM 5051-8-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

MAINTENANCE TEST FLIGHT MANEUVERS GRADE SLIP (OV/RV-1)

For use of this form see FM 1-544. The proponent agency is TRADOC.

Examinee's/Trainee's Name _____ Date _____

Instructor or evaluator will sign in the first unused block.

a. NO.	b. MANEUVER / PROCEDURE	c. GR.
1	PRIOR-TO-MAINTENANCE TEST FLIGHT CHECKS	
2	BEFORE-STARTING ENGINES CHECK	
3	STARTING ENGINES CHECK	
4	BEFORE-TAXIING CHECKS	
5	AIRCRAFT TAXIING CHECKS	
6	MAGNETIC COMPASS COMPENSATION	
7	ENGINE RUN-UP CHECKS	
8	BEFORE-TAKEOFF CHECKS	
9	DURING-TAKEOFF CHECKS	
10	AFTER-TAKEOFF CHECKS	
11	DURING-CLIMB CHECKS	
12	DURING-CRUISE CHECKS	
13	TRIM AND RIGGING CHECK	
14	AUTOPILOT/FLIGHT DIRECTOR OPERATIONS	
15	SINGLE-ENGINE CHECK	
16	AIR-START CHECK	
17	EMERGENCY UNFEATHER CHECK	
18	FLAP OPERATION CHECK	
19	SPEEDBOARD OPERATIONAL CHECK	
20	HIGH-SPEED DIVE	
21	GEAR EXTENSION/RETRACTION CHECK	
22	COMMUNICATION AND NAVIGATION EQUIPMENT CHECKS	
23	DESCENT-ARRIVAL CHECK	
24	BEFORE-LANDING CHECK	
25	LANDING CHECK	
26	AFTER-LANDING CHECK	
27	SPECIAL PROCEDURES	
28	ENGINE SHUTDOWN CHECKS	
29	ORAL EVALUATION	
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DA FORM 5051-10-R, JUL 90 **EDITION OF JUN 86 OBSOLETE**

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5a. PRIMARY

7. UNIT/ORGANIZATION

10. PRIMARY AIR

10a. TASKS—GENERAL TEST FLIGHT	1 F F

MAINTENANCE TEST FLIGHT PERSONNEL TRAINING RECORD

For use of this form, see FM 1-544. The proponent agency is TRADOC.

1. NAME AND RANK	2. DATE OF BIRTH	3. AMOC II COMPL	4. FAC LEVEL

5. AIRCRAFT ASSIGNMENT		6. MTF EVALUATION DATES	
5a. PRIMARY	5b. ADDITIONAL	6a. PRIMARY	6b. ADDITIONAL

7. UNIT/ORGANIZATION	8. TOE/TDA POSITION	9. PERIOD COVERED

10. PRIMARY AIRCRAFT TASK RECORD							11. ADDITIONAL AIRCRAFT TASKS RECORD						
10a. TASKS—GENERAL TEST FLIGHT	10b. FREQUENCY REQUIRED	10c. DATE AND NUMBER OF ITERATIONS					11a. TASKS—GENERAL TEST FLIGHT	11b. FREQUENCY REQUIRED	11c. DATE AND NUMBER OF ITERATIONS				

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

THOMAS F. SIKORA
Brigadier General, United States Army
The Adjutant General

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